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OBSERVATIONS ON EPIDEMIC ENCEPHALITIS.*

F. E. Coulter, M. D., F. A. C. P., Omaha, Neb.

No disease in the past quarter of a century has awakened such wide spread interest in neurological medicine as epidemic encephalitis.

A few years ago, when attention was called to this subject by Von Economo, and by the way, it was he who unfortunately labelled the disease "Lethargic Encephalitis," it was supposed to be an entirely new disease, something new had appeared "under the sun." The world war or the unsanitary conditions in European countries, because of the war in some way, were given as the genesis. A little careful investigation, however, proved it to be an old disease, for following an influenza epidemic in 1712, it became pandemic and spread from Europe as in this instance, following the lines of trade to the rest of the commercial world.

At this early date, as in the present instance, one of the prominent symptoms was the hyperidrosis and because of this fact, at that time, and also in the 18th and 19th centuries, it was called the "Sweating Sickness"—(Crookshank).

It has been stated (Journal A. M. A. 4-9-21) that the present pandemic appeared first in Austria, 1917, and that it reached France and England in the spring of 1918 and spread to Italy and the eastern half of the United States toward the end of the same year; then it extended to Portugal in February, 1919, and to the Pacific Coast of America in October, 1919. India in November of the same year was visited, and Spain was invaded in the early part of 1920.

The first case seen by the writer in Nebraska was at Kearney, March 16, 1919, in consultation with Drs. J. J. and A. D. Cameron and since that date more than twenty cases have been encountered in consultation and private practice.

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*Read before Nebraska State Medical Association, Lincoln, Neb., May 9-12.

Recent statistics in Great Britain, France and the United States indicate that the disease is at the present time quite prevalent throughout the greater portion of the world. but unfortunately these records are not accurate and afford but little information as to its nature or control. These statistical defects might easily be remedied to some extent, at least, were it made obligatory by health officials to report the disease, which suggestion we most heartily endorse. However, according to Tilney, "There is at present no evidence that the disease is contagious and no light has been thrown on the method of transmission." The Department of Public Health of Massachusetts reports forty two cases occurring during the month of January 1921, it not being a reportable disease prior to January 1, 1921.

This subject is such a very broad one that it seems almost folly to try to draw a well defined picture of the disease in the time allotted, yet the necessity is pressing and our lack of general knowledge on the subject appears serious. This paper will, therefore, only assume to deal with the most familiar landmarks of the disease and no attempt will be made to describe clinical cases or any of the many unusual examples encountered. Our medical journals for the past two or three years have been full of our subject, especially neurological journals, but many of these articles have had to do with the unusual and rare cases, instead of acquainting us with the usual forms, which are most likely to be encountered. There have been numerous exhaustive discussions, however, by the best men abroad, as well as in this country, such as Von Economo, Bouvier, Netter, Buzzard and Wilson; Tilney, Howe, Riley, Bassoe and many others, but time has not yet seemed sufficiently adequate to impress upon us a clear, classical clinical picture of the disease.

We believe there is a reason, as well as an explanation for this condition of affairs. In the first place, the anatomy and physiology of the central nervous system is not sufficiently familiar to the average general clinician to enable him to locate the trouble when something goes wrong in this very vast and intricate territory. Unless we are called upon to use a particular portion of our anatomical knowledge frequently, we are inclined to get a little befogged concerning it.

When one pauses to make a survey of the variety of the cranial contents, he must consider in connection with this disease, namely, the twelve pairs of cranial nerves, the meninges, cerebrum, cerebellum, pons and medulla, all containing many centers of different anatomical and physiological value, then add to this, in many cases, not only the spinal cord and its membranes and nerves, but the vegetative nervous system and the endocrine disturbances also encountered occasionally, and as a fitting climax, the abnormal mental deviations which form no small part and often the overshadowing portion of the symptomatology in quite a number of these cases, it would seem we have a most plausible explanation for the appalling bewilderment of symptoms encountered and the clouding of diagnostic acumen and conclusions.

There is no disease with which we are acquainted that requires a broader conception of neural anatomy and physiology and a more comprehensive working knowledge of mental diseases in general, in order to be able to make a reasonably sure diagnosis, than epidemic encephalitis. Even with this broad, comprehensive view, outlined in mind, the question would be much easier of solution if one were not always compelled to keep clear another important factor, namely, the variability of "intensity" of this disease. This variability is marked and may be found in any location involved.

In some cases, there may be many and marked cranial nerve involvements, in others, few but slight, or transient, or none. The same is true when the encephalon, itself, is involved, also the meninges, the cord or different nervous systems. This is one of the reasons for the great variety of symptoms and numerous types of the disease. The types are almost limitless, it would seem, and we, herewith, call attention to a few of the most frequent encountered. (See Chart I).

Age Incidence: Epidemic encephalitis, therefore, seems to be no respecter of age, or sex, but young adults and the age of greatest activity seems to furnish the largest number. The youngest case we have observed personally was less than two years old, while the oldest was seventy nine.

Etiology: The exact nature of the etiological factor or factors concerned in the production of this disease is still an unknown quantity. That we are dealing with an organism producing a toxin or toxins with a prediliction for nervous tissue, is generally conceded by all investigators to be the probable truth, but just the exact nature and full description is yet to be supplied. "The portion of the nervous system most frequently involved is the periaqueductal region of the mid-brain."

"No portion of the nervous system seems immune, but the action of the virus on the motor elements is most severe. The more primitive and phylogenetically older portions of the motor system are more often affected than the later developed pyramidal system." (Tilney).

CHART I.

TYPES

Tilney and Howe

FREQUENT	LESS COMMON
1. Lethargic.	9. Meningitic.
2. Cateleptic.	10. Acute Anterior Poliomyelitic.
3. Hemiplegic.	
4. Paralysis Agitans.	11. Epilepto Maniacal.
5. Polioencephalitic.	12. Acute Psychotic.
6. Choreiform.	13. Sympathetic System.
7. Myoclonic.	
8. Multiform.	14. Abortive.

NOTE:—A pyramidal system type has been encountered by the writer, which is not here enumerated.

AGE INCIDENCE.

Under 1 year	3
1 to 10	27
10 to 20	29
20 to 30	33
30 to 40	22
40 to 50	21
50 to 60	17
60 to 70	7

Osler considered it a modified form in some way, of the poliomyelitis organism and there are quite a few factors in support of his theory. There are other eminent observers, however, who do not hold to this theory and there still remains considerable investigation before the subject is entirely understood. That the organism, whatever it may prove to be, has an affinity for the neuraxis, wherever found, seems pretty firmly established.

The opinion in this country that the "flu" organism was in some way related to, or responsible for. the encephalitic condition at one time was advanced, but no definite relationship has ever been established. While many patients with encephalitis, it is true, had previously been "flu" subjects, yet this was not the case invariably. The spread of the disease over the United States resembled in a way poliomyelitis, not a little, but other marks of resemblance were wanting.

The incidence of encephalitis seems in some manner to be related to our winter months, in other words, it is a cold weather disease, which is not the case with poliomyelitis; yet like poliomyelitis, it is probably due to a filterable virus, but this, even, is not yet proven.

SYMPTOMATOLOGY.

One is truly bewildered when he comes to contemplate the symptoms of this disease, not only because of their variety and number, but because of their apparent lack of relationship. The reason for this is obvious when a survey of the extensive field involved is recalled. We will try to group these symptoms in the order of their onset and frequency and at the same time classify them, if possible, to facilitate intelligent comprehension.

However, let us remember distinctly that a given case may manifest only a small number and yet another case may develop many of the signs and symptoms we propose to enumerate, all depending entirely upon the area involved, as well as the intensity of the pathological manifestations present.

The following arrangement of the symptoms in four groups seems suitable. (See Chart II).

CHART II.

SYMPTOMATOLOGY.

1. Prodromal.
2. Early General and Constitutional.
3. Neurological.
4. Mental.

PRODROMAL.

Early manifestations—while pulse. temperature, respiration are normal—Irritable—peevish—lacks interest and initiative—complains of being weary—wants to be left alone—unable to do his work as before—makes mistakes and does not care if he does—given to senseless and ridiculous acts—diagnosed not infrequently as some early form of psychosis—may pass unnoticed unless marked—may last a couple of weeks or more.

1. Prodromal.
2. Early General and Constitutional.
3. Neurological.
4. Mental.

SYMPTOMATOLOGY.
PRODROMAL.

(See Chart II).

By prodromal symptoms we mean those

early manifestations appearing not infrequently while the pulse, respiration and temperature are still normal. These generally are manifested by irritability, peevishness, lack of interest, as well as initiative; they complain of being weary, want to be left alone, unable to do their work as before, make mistakes and do not care if they do, are given to unusual and sometimes senseless and ridiculous acts. At this stage, these cases are not infrequently diagnosed as some unusual form of alienation; however, if the course of the disease be closely observed, it will be found they do not conform strictly to any of the usual types of insanity.

This prodromal period may pass unnoticed if not marked and may continue for a few days up to two weeks or more, when it is usually followed by the symptoms of the second class, namely:

EARLY GENERAL AND CONSTITUTIONAL.

(See Chart III).

"Early symptoms are frequently those of an upper respiratory tract infection and it is possible that the portal of entry of the virus is by way of the nasopharyngeal mucous membrane. The method of conducting the infection to the nervous system is not known. However, the similarity to Heine-Medins Disease and Born's Disease, leads one to suspect that it is by way of the lymphatics"—Tilney.

CHART III.

SYMPTOMATOLOGY.

Early General and Constitutional.

TYPE I.—Cold—upper respiratory tract infection—these conform in a general way to the usual types of cold—coryza, cough, etc.

Asthenia—General, exhaustion, myasthenia gravis, but a different history.

Headache—Severe or not marked.

Backache—May be marked or not.

TYPE II.—Gastrointestinal—disturbance may be marked, resembling ptomaine or botulinus poisoning.

Temperature—100-105—higher, early—lower, later and may be persistent—long period.

Pulse—Early high and remains irritable for a long time after recovery, frequently upon exertion.

Respiration — Cough — irritative — frequently due to disturbance—10 C. N.
Hiccough—(phrenic).

Albuminuria—Present at times.

Nutrition—Impaired.

Vasomotor Disturbance—Hyperidrosis is frequently encountered.

Thus these symptoms at the onset may resemble a severe cold, with cough, coryza, headache, backache and general lassitude, asthenia, etc. Some of these cases resemble, in a way, the myasthenia gravis picture, but the course and history are quite different.

Temperature is usually present at this stage, 100-105 and may be persistent or intermittent and the pulse is usually high and remains irritable for a long time.

Not infrequently another class of these cases starts off with gastrointestinal disturbance instead of the respiratory. Here there is nausea, vomiting and diarrheal troubles. These cases resemble ptomaine or botulinus poisoning and have been discussed along this line by a few observers.

A third class starts out apparently with a low grade of infection that gradually merges into some of the numerous types of the disease.

NEUROLOGICAL.

(See Chart IV).

While cranial nerve involvement is one of the most characteristic signs of this disease, it is by no means the only neurological manifestation present. Nevertheless, the cranial nerves may escape entirely or only be involved transiently or to a slight degree. All of the cranial nerves, excepting the first have been reported as having been affected in this disease, but we have not seen reported or observed, a case of anosmia or hyperosmia.

Optic neuritis, diplopia and blurring of vision and even the Argyll-Robertson phenomenon are not at all uncommon, signifying involvement of the second, third, fourth and sixth and the ophthalmic division of the fifth; and the remaining portions of the fifth have not escaped, by any means.

A single or double Bell's palsy is not uncommon with accompanying keratitis in a few days, resulting in the complete loss of sight of one or both eyes. We have seen one such case.

Almost as frequently encountered and considered almost as pathognomonic as the eye symptoms just mentioned, are ear or head sounds, with various varieties of tinnitus.

Another group of symptoms frequently encountered is that which denotes involvement of the cranial bulbular group of nerves. Here we find difficulty in swallowing, alterations of speech, changed respiration, tachypnea, tachycardia, cough, hiccough and often vomiting, etc.

CHART IV.

SYMPTOMATOLOGY.

Neurological Cranial Nerves

Cranial nerve disturbance is one of the most characteristic signs of the disease, yet this may be entirely absent.

1. Have not seen a case of animosia or hyperosmia and have not read of one reported.
2. Optic neuritis and later atrophy not uncommon.

3-4. Diploplia and lack of accommodation.

5. Motor portion (Sensory portion reported).
6. Internal strabismus—suggestive.
7. Frequently involved, bilateral—occasionally (Keratitis).
8. Tinnitus frequent—diagnostic value.

9-10. Glossopharyngeal
  - Disphagia—cough—tachypnea—tachycardia—increased respiration—gastric disturbances—hiccough—often present.

11. Pneumogastric—Heart, stomach, respiration.
12. Tongue tremors and deviation.

Neurological Cranial Nerves (Cont'd)

- General Neurologic Motor Disturbances
  - Tremor
    - Coarse—Parkinson's type. (Paralysis agitans)
    - Myoclonic type, a single muscle or group.
  - Fine
    - Myokemia—?—P.M.A. type.
    - Catalepsy—cataleptoid. (Flexibilitas cerea.)
- Movements—Choreiform—irregular—incoordinate.
- Reflexes
  - Superficial
    - Plantar
      - Extensor
      - Flexor
    - Abdominal
      - Most important Represented in the cerebrum according to Monrad Krohn
  - Deep
    - Plus (+)
    - Minus (—)
    - Absent (0)
    - Clonus present in certain types
- Sensory
  - Alterations reported ?not frequent
  - Anasthesia
  - Parasthesia
  - Hyperasthesia.

Under the head of general neurological symptoms may be mentioned as most prominent, motor disturbances, which may be of many grades and characters. A commonly encountered type is the Parkinson's and other forms of tremor, also choreiform movements; another class, the myoclonic type, in which a single muscle or group of muscles may be involved, is not unusual.

Another type is that of the finer myokemic variety in which there are fibrillary movements resembling progressive muscular atrophy. Cataleptic or cataleptoid states, with flexibilitis cerea, is not uncommon. The superficial reflexes are variable, the plantars may be of the Babinski or of normal response and the Oppenheim and Gordon signs may be present or absent. The abdominal reflexes, well considered some of the most important, because represented in the cerebrum, according to Monrad Krohn, are generally found impaired or absent and are of great diagnostic importance in considering the progress of the disease. These reflexes must not be confounded with the costal reflex or the myoclonic movement in the costal region, first described by Riley.

The deep reflexes may be increased, diminished or absent. Sensory alterations are reported, but not so frequently as motor changes. They consist of hyperasthesia, hyperalgesia and parasthesia.

MENTAL.

(See Chart V).

Under this group, we not only include those of the premonitory type, already referred to, but the more pronounced and definite mental changes that are frequently encountered, somnolence or lethargy being the most frequent and from which the disease gets the name of "sleeping sickness," as known by the laity. However, just the opposite condition, one of insomnia, is encountered at times, with motor activity, a veritable acute mania, with exaltation or depression, delirium, confusions, incoherence, coma and the katatonic and hysterical phases may be present, accompanied by delusions and hallucinations, the latter at times very active, pronounced and disturbing.

CHART V.

SYMPTOMATOLOGY.

Mental

Generally acute mental alteration.

Somnolence	Delirium	Catatonic and hysterical phases
Insomnia	Coma	
Mania—motor activity	Confusion	
Depression	Incoherence	

Combinations of above states.

Mental attitude may be of increased or diminished activity.

Sensory stimuli stream into the brain where they are either ignored or are misinterpreted entirely, or may be given their proper interpretation.

FLEETING SYMPTOMS.

Similar to those mentioned only of shorter duration—lasting only a. few hours.

Edema

Vasomotor Changes
- Spasm
- Paralytic

In short the mental attitude may be one of diminished or increased activity. Sensory stimuli are streaming into the brain and these may be either ignored entirely, misinterpreted, or given proper interpretation, after the lapse of increased reception time.

One must expect many combinations of the mental symptoms just mentioned lasting only for a few hours or for a day or two or for months to be frequently observed.

Fleeting symptoms are occasionally encountered. These may at the onset appear quite formidable, but to the great surprise of all concerned, they disappear almost as quickly as they appeared, but the patient is weakened and debilitated for an unusual length of time, demonstrating clearly he has encountered a general infection of a severe character. Just what is the explanation of this peculiar abortive course of the disease is not yet clear, several theories being advanced.

Pathologically: Epidemic encephalitis is found to be a perivascular infiltration of mononuclear cells, with edema about the blood vessels in the encephalon, more frequently encountred in the periaqueductal region and not infrequently pervading the basal ganglia and occasionally small hemorrhages occur in the regions of greatest activity.

The hospital cases investigated have given histories of spinal fluid cell counts, averaging from fifteen to fifty cells, generally mononuclear in character. When there was a high count, some polymorphonuclears were noted (Boston Medical and Surgical Journal 4-14-21).

Prognosis: Is variable, but good as a rule. After acute conditions have subsided, however, a long period of time is often a very important element in the prognosis. This may extend into weeks, months and even years.

The mortality varies from 15 to 45 per cent.

As to sequellae, sufficient time has not yet passed to enable us to tell the entire story.

Many patients are left invalids, because of the asthenia or mental disturbances they have encountered. Time alone will determine the extent of the havoc that has been wrought by this disease. It stands to reason that a patient who has suffered from this illness for weeks, months or in rare instances, years, should be deficient in resistance to combat the trial and stress of this twentieth century existence.

TREATMENT.

When we turn to the subject of treatment, as might be supposed, we find it chaotic to a marked degree. Our laboratory investigators up to this time have not yet devised a serum or vaccine worthy of consideration; however, it is not to be understood by this statement that we should adopt an attitude of inactivity, lose hope or diminish effort. Much may be accomplished in an empirical way to relieve the condition.

Complete rest of both body and brain are most essential and the services of a well trained, capable and sensible nurse, if such person may be found in these times, is most desirable.

The diet should be mostly liquid and reasonably nourishing and there should be plenty of volume.

For early and high fever, frequent cool sponging affords relief and comfort and later the warm or hot bath should not be neglected; but if not available, the hot pack is not to be forgotten, especially in the case of the acute mentally disturbed patient. However, these measures should be resorted to only under the care of a competent assistant.

As to drugs, no specific remedy has been found for this as well as many other diseases. Urotropin has been given theoretically, but its practical value is problematical. Iodide of potassium as an eliminant, especially in the early stages of the disease, we believe from experience, to be of service. For those cases of excitement, violent delirium and restlessness, the hydropathic measures just mentioned, with the bromides, neuronidia, neurosine, paraldehyde, or other sedatives along this line will be found suitable; care being exercised not to use any one remedy for too long a time as these patients are prone to establish a drug habit easily. For the tremors at times found to be very annoying, hyoscine—hydrobromate or codeine in suitable doses, two or three times a day, will be of benefit.

As the case progresses to convalescence, a modified rest cure with massage and tonics, consisting of arsenic, iron and the bitter vegetable preparations are serviceable.

Spinal puncture we believe to be of much value under certain conditions. Especially should it be considered not only as a diagnostic measure, but therapeutically, as well, especially in those cases where the lethargic phase predominates. It has been our experience in these stuporous cases that we are dealing with increased cerebrospinal pressure and they are relieved by the puncture, which is clearly evidenced by the increased pressure of the fluid. When relieved of this pressure, the patient not infrequently returns to a fairly normal mental state for a time, but this procedure has to be repeated every few days or weeks, for an indefinite period, depending upon the duration of the disease. By lessening the cerebrospinal pressure, less damage is likely to result to the already diseased brain tissue and nervous system and this may be no small factor in the ultimate recovery. The fixation abscess by the use of turpentine, has been advocated and in several instances seems to afford good results.

For resulting palsies; massage, galvanism and voluntary exercise, as soon as possible, after acute symptoms have subsided, will be found to be of much assistance. Faradism is of but little use as it fails, generally, to exercise the muscles involved.

We have not made an effort to exhaust the entire list of remedies or measures that may be useful in the treatment of this disease, but rather to indicate the lines of treatment along which benefit may be derived.

One last point of admonition in the management of these cases—do not allow your patients to get up and about too early as signs of improvement begin to appear, for there is no class of case that requires a more prolonged and carefully directed period of convalescence than that of encephalitis. If a relapse with all of its tedious and unsatisfactory train of symptoms is to be avoided, keep your patients in bed a long time after all symptoms have disappeared and then very gradually, day by dav, allow increasing exercise, noting carefully the results before final discharge.

DISCUSSION.

Dr. G. Alexander Young, Omaha.—It has been a great pleasure to listen to this paper. There are three things I should like to emphasize. First, the use of the lumbar puncture. I think I have seen twenty two cases in the last two years. A lumbar puncture was undoubtedly of help in relieving the symptoms in a number of cases. After it was carried out and the pressure relieved, the patient would be better, the lethargy would diminish, and the symptoms of improvement would be maintained to a certain extent.

Another point is that some of these cases relapse. It emphasizes Dr. Coulter's caution that they should be kept in bed for a long time after they feel well and want to get back to work. The case I have in mind is of a woman who in December, 1919, had a very severe attack of epidemic encephalitis and was in coma for five weeks. She made a marked improvement during the next three months, and by June was able to be up and about, complaining only of a distressing zone of hyperaesthesia around the abdomen. In October she employed a chiropractor who treated her for two weeks. At this time she developed a glossal paralysis followed by a rigidity of the whole body and a typical Parkinsonian posture of the hands. This condition is still present.

Another consideration is that the element of focal infection in the teeth or sinuses should be investigated. In one severe case of the myoclonic type with persistent severe root pains about the abdomen, these were relieved shortly after a number of abscessed teeth were removed.

Dr. F. W. Heagey, Omaha.—I have listened with a great deal of interest to what Dr. Coulter had to say in regard to his observations. Since I saw our first case in June, 1919, I have had the opportunity to observe about fifty cases.

The types of the cases observed during the past year have shown little change from those of the previous year. There was every reason to believe from reports on epidemic encephalitis in Paris, London and New York that we should see decreasing numbers of lethargic cases and increasing numbers of myoclonic cases. New elements have been observed but they have all the old earmarks, i.e., ophthalmoplegia, lethargy and atypical spinal fluid changes. A few cases with tremors and myoclonus, several cases in which the symptoms of cerebellar disturbance were prominent. The year's experience has served only to make us more conservative in our diagnostic reasoning and more convinced that epidemic encephalitis must be diagnosed by a process of exclusion. The post mortem table has furnished as much startling information in epidemic encephalitis as it has always done in other types of disease.

There has been only one instance of two cases in the same family in our experience.

Treatment consists of hospitalization and lumbar puncture, the repetition of the latter procedure depending entirely upon the course of the symptoms.

Dr. F. E. Coulter—Closing: Our paper was a dissertation on encephalitis rather than lumbar puncture.

In the case Dr. Young refers to, it is a difficult question in my mind and hard to determine just when we are through with this disease in a particular case. I wonder if there had not been some symptoms of this trouble still remaining, which eventually became active?

In regard to Dr. Heagey's remarks, I agree with what he has to say.

I want to bring out that a patient who has suffered from epidemic encephalitis is especially liable to develop some other nervous disease later on, such as multiple sclerosis, combined degeneration or some other form of disease along this line, because his resistance has been lowered, just as those who have been in general practice will remember the resistance of patients who suffered from diphtheria, etc., was lessened. If there is any defective tendency in the developmental period of the patient's life, it is likely to be shown at such a time; so that it is just what we would naturally expect to find following this disease coming on at a later period.

TIC DOULOUREUX IN RELATION TO LATENT MAXILLITIS.*

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Tic douloureux or trifacial neuralgia is characterized by sharp stabbing pains of intense severity, sometimes accompanied by facial spasms. The pain referred to the distribution of the different terminal branches of the fifth nerve. An attack usually consists of several of these poignant, excruciating shooting pains, each short in duration and repeated at varying intervals. These stabbing pains may last for one tenth of a second or more or be in the form of an intense pain lasting as long as fifteen minutes, the average duration is less than a minute. The pain is entirely distinct in its characteristics from the pain resulting from a toothache or the ordinary supraorbital or infraorbital ache commonly called neuralgia. A pain that is continuous and throbbing in character cannot be classified as tic douloureux. An acute sinusitis pain has no relation to trifacial neuralgia. The facial spasm is not a true motor tic which is purposeless, but is of the nature of muscular spasms elsewhere which accompany pain. It may be entirely absent, and replaced by an immobility of the face, or by the patient rubbing the face or by other forms of reaction to the pain. The attacks may occur at frequent intervals during the day or perhaps be several months apart. They rarely occur at night. Women and men are about equally liable and either side of the face seems equally susceptible, over 90 per cent of cases occur after the age of 40, and 65 per cent of these between the ages of 50 and 70. The ratio of incidence is as follows:

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*Read before the Nebraska State Medical Association, Lincoln, May 9-12, 1921.

Patrick in statistics from 200 cases found

The 1st or ophthalmic division affected in 8.5%.

The 2nd or superior maxillary division in 49%.

The 3rd or inferior maxillary division in 25%.

And two or more divisions affected in 17.5%.

The clinical observations of the older writers attributed the neuralgia to anemia and to rheumatic, gouty and neuropathic predispositions or conditions. These general conditions we now generally find depending on a focal infection as the underlying cause. Hugh T. Patrick, (1) however, in his excellent article on the symptomatology of trifacial neuralgia, from which most of my statistics are quoted, states that, "In no case have I known treatment of a sinus or tooth infection or the extraction of carious or painful teeth to cure trifacial neuralgia," and he gives as reference Hajack's experience, that he had never seen tic douloureux in sinus disease. Patrick's article is based on the careful observation of 200 cases and as no general or local condition is found as a causative factor, the deduction would seem to indicate an idiopathic etiology.

I recognize the weight the opinion of such careful observers carries. Yet there have several years elapsed since the above statements were made and the authors in considering the modern conception of the pathology of the nose and of the alveolar processes probably might revise their etiology if they were to write at the present time.

In the literature of the past 10 years Beck (2) finds but three references to the pathology of trifacial neuralgia in which the writers have also been workers.*

Such profound pathological changes as these represent, however, the terminal stage. The exacerbations of pain are probably caused by vasomotor reactions within the nerve sheath and ganglion and their effect increased by surrounding osteitis.

It seems to me that a neuralgia of this type is unlikely to originate of itself, and that it is worthy of careful study to determine whether trifacial neuralgia is idiopathic and primary, or whether it is secondary and due to local osteitis of the bone surrounding any of the terminal branches of the three divisions of the nerve. On this will depend the rationale of the treatment. If the neuralgia is primary, then attacks on the nerve are indicated, if it is secondary, the primary osteitis should receive first surgical attention in the hope that the nerve may return to normal, and that the general conditions resulting from the osteitis viz., anemia, rheumatism, neurasthenia, etc., may also disappear. This latter would be a real cure with a return to normal. Any procedures which rely on a deadening or killing the nerve, result at the best in only symptomatic relief of pain.

Adson (3) agrees with Patrick that nasal and dental surgery do not help this neuralgia. He says (4) "the true case of the trifacial neuralgia has never been relieved by sinus drainage nor by the removal of the teeth."

The accepted operative procedures among neurological surgeons according to Adson (4) are as follows: Deep alcohol injections into the peripheral branches and ganglion, avulsion of the peripheral branches, or division of the posterior sensory root of the Gasserian ganglin. For this last operation he has devised an extremely delicate and exact technique. Pleth (5) reported several cases of keratitis resulting from injections of alcohol deeply into the Gasserian ganglion, and in one case there was loss of the eye. He recommends cervical sympathectomy.

Flint's physiology 1895 agrees with the modern surgical findings that if the nerve is divided posterior to the ganglion the nutritional nerves from the sympathetic to the cornea are intact. The cornea is, however, anesthetic and there is no muscular reaction of the lids to protect the eye from foreign bodies or trauma. The cornea is, therefore, liable to traumatic injury and infection which may result in blindness from opacity of the cornea or from loss of the eye.

A consideration of the following facts leads me to the conclusion that there is perhaps a very definite cause for these neuralgias.

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*Post mortem examination of cases "that gave history of long standing so-called severe face neuralgia show a definite shrinkage of the ganglion and its trunks. They appear paler than normal. Microscopic evidences are of a chronic neurogliar interstitial neuritis. The blood vessels are smaller. It appears as though the nerve was being starved of blood and is crying out for food instead of showing evidences of engorgement which no doubt existed when the process first began and still does at certain periods of acute exacubation."

The fifth nerve differs from other sensory nerves in the fact that its peripheral branches pass through bony canals in bones which are particularily liable to osteitis. The clinical findings show that each branch is attacked in proportion to the length of the branch so surrounded by bone, and also in proportion to the liability of the surrounding bone to inflammation.

The first or ophthalmic division of the fifth is the division least subject to attacks of tic douloureux. The frontal bone is not so frequently the seat of osteitis as the maxilla and the mandible, as the frontal sinus is much less liable than the antrum to chronic infections and the frontal bone is removed from dental caries. The supraorbital branch runs through the supraorbital foramen which has practically no length, and is often only a notch so that it is surrounded only by a ring of bone and has no canal.

The second division is the most frequently affected and its infraorbital branch most subject to attacks of neuralgia. This branch passes through the infraorbital canal and groove and is surrounded by the bone forming the superior wall of the antrum for the entire length of that wall. It emerges from the canal at the infraorbital foramen.

My findings in the examination of different specimens taken from both the anterior and the nasal walls of operated antra, show that generally there is a rarifying or a sceeroring osteitis accompanying a low grade or latent antrum infection, added to this the antrum is probably of all the nasal sinuses the one most frequently the seat of chronic infection. If to this factor is still further added dental pathology, the superior maxillary bone is seen to be particularly vulnerable to infections causing osteitis.

The inferior dental branch of the third division also runs through a long bony canal in the lower jaw but as this bone is removed from nasal infections, this branch escapes more often than does the infraorbital nerve.

Osteitis surrounding the different canals occurs therefore in about the same order of frequency as does the neuralgia attacking the different branches. (See previously quoted table).

The chronic osteitis and neuralgia also both occur during the same period of life. They are least frequent in the first three decades of life, more frequent in the fourth and fifth, and most frequent in the fifth, sixth and seventh. Therefore, pathologically, trifacial neuralgia is closely associated with osteitis in the bones through which the terminal branches of the three divisions pass.

If these deductions are correct, the question resolves itself into treatment of the osteitis. Modern oral surgery is taking care of dental infections by partial or complete alveolectomy when necessary, thus removing not only the offending tooth but also the affected cancellous bone surrounding it. It remains for rhinologists to fill in the missing link by diagnosing and taking care of the osteitis resulting from either manifest or obscure antrum infections.

Tic douloureux is an extremely severe and persistent condition, and if attempts are made to relieve it by merely correcting nasal deformities they will result in failure. Chronic infective processes come under an entirely different classification and whether in the nose and mouth, or elsewhere, should receive careful consideration. The surgeon whether he be neurological or rhinological must take them into account or his patient will inevitably suffer for his neglect.

It is useless to expect that removal or cauterization of the turbinates or correction of nasal deflections will materially affect the condition of latent maxillitis except insofar as they indirectly improve the drainage of the antrum. This indirect effect, however, is not sufficiently reliable to be of much value in dealing with a chronic antrum involvement.

A latent maxillitis has certain unmistakable signs. They may all be present or only in part. They are:

(1) Mucopus in the middle fossa. This mucopus is not necessarily yellow and creamy. It may be only scant and dry, forming a glazed scab covering the middle turbinate. Many latent streptococcus infections of the antrum give only a slight amount of clear often glairy secretion. The maxillary opening and contour of the middle nasal fossa may be such that the infected secretion is not seen in this fossa but drains posteriorly into the nasopharynx.

(2) The posterior pharyngeal wall usually gives evidence of the infected secretion, either by the lateral swellings posterior to the posterior tonsillar pillars, by follicular swellings covering the oropharynx, by a dry

glazed film covering the pharyngeal wall, or by masses of frank mucopus seen coming into view from above the uvula.

(3) The middle turbinates are often granular on their anterior portion and there are sometimes polyps.

(4) The density of the x-ray shadow is controlled by several factors which may be present.

(a) Osteoporosis or osteosclerosis.
(b) Osseous changes from concurrent alveolar diseases.
(c) Contents of the antrum. Thick mucopus producing a dense shadow, scant streptococcic secretion intensifying the shadow hardly at all.
(d) Thickness of the lining mucosa and presence of polyps.

When these underlying conditions are considered, the interpretation of the x-ray plate will give definite and reliable information. The shadows will have varying intensities which I think can best be expressed by plus signs, four plus being a practically opaque antrum and the other shadows grading down to a slight cloudiness which is called one plus. If the cloudiness is still more indefinite it may be recorded by an interrogation mark. Some antra with only faint x-ray showings have been found to be the seat of latent streptococcus infection.

It is conceivable that an infection of the antrum with an essential atrophy of the mucous membrane and rarefaction of the bone might even appear clearer than normal in the x-ray plate. I have seen clinical evidence of this assumption though I have never operated on such a case.

I attribute what success I have had in the following cases to through and through drainage according to the technique I have previously described. (6, 7, 8) Unless it is understood that these latent or obscure maxillites so often do not necessarily consist of a frank empyema, there will be difficulty and failure in the diagnosis. It seems to me that the failure to recognize these low grade infections, and to provide relief, is responsible for the statements of neurologists and neurological surgeons, that nasal surgery is powerless to relieve tic douloureux.

As these cases of latent maxillitis are diagnosed and given constant through and through drainage in the treatment of tic douloureux of the second branch, I believe there will be less need of radical procedures on the Gasserian ganglion, or its root.

Following are three case reports:

Case No. 1. Aug. 25th, 1919. Mrs. A. G. Age 60. For past ten years has been subject to severe headaches and nervousness. Has been pale and had poor appetite. Two years ago she had a sharp stabbing pain in the region of the left cheek. For past six weeks has had these attacks daily, each attack lasting about one minute. During this period patient has refused to eat fearing to bring on an attack. She has lived on liquid nourishment. Examination: Teeth, none filled or crowned. No pyorrhoea. Nose: Middle turbinates swollen. Scant catarrhal secretion. Pharynx. Scant dry film of mucopurulent secretion. x-ray: Teeth vital and sound. Right antrum clear; left antrum +++.

Conclusion: There is a trifacial neuralgia increasing in severity, confined to the second division of the 5th nerve and most active over the infraorbital distribution. The primary cause is a low grade chronic infection of the maxillary antrum (latent maxillitis).

The left antrum was opened according to the author's technique (6) and through and through irrigation carried on for two weeks when the patient returned home eating normally and feeling well. At the time of operation, ten minims of alcohol were injected into the infraorbital nerve. There was no accumulation of pus in the antrum. The anterior wall was thickened but very soft, and the mucous membrane of the antrum was thickened and pale and had adherent scant mucopus.

April 22nd, 1921. Twenty months after operation the patient's general health and appearance were excellent. She had had no return of her neuralgia except this March when she had several attacks during one week. These attacks seemed to be coincident with an acute reinfection in her antrum. The opening beneath the inferior turbinate is now found to be free and a large sized eustachian catheter was used to wash out the antrum. The return was clear except for some flakes of mucopus. The next day the antrum was found to be entirely clear.

Case No. 2.—Mr. G. C. M., age 50. Has had spasmodic, sharp shooting excrutiating paroxysms of pain in region of left infraorbital branch of 5th nerve for past 10 years. Attacks have been weeks apart, and last year had no attacks, 5 months ago had the "flu" and since then has had attacks almost every week. In each attack the spasms came on every 4 to 6 minutes and lasted about an hour. The patient was very anemic and had been reduced to an extremely feeble state with marked nervousness. It was with difficulty that he could muster enough courage to come up for examination, and he had to be supported on either side when he walked. He stated that he had sought relief and had been told of the operation for cutting the posterior nerve root, but had declined it on account of the possible after results to the eye and to sensation. Examination:

Nose: Both middle and inferior fossae on both sides show slight mucopurulent secretion. No pure pus.

Teeth: No aveolar trouble. Some pyorrhoea.

Pharynx: Glazed film of mucopurulent secretion.

Tonsils: Left normal; right +.

Ears: Right canal filled with pus.
Left Mmembrana Tympani slightly reddened.
No discharge.

X-ray: Both antra cloudy. ++ Sphenoids +.
Other sinuses clear. Right mastoid sclerosed.
Left normal.

Both antra opened. Bony anterior walls very much softened. Bone and antral mucosa bled freely. No retention of pus in either antrum, mucous membrane in both showed softening and thickening resulting from pyogenic infection. Alcoholic injection of left infraorbital branch 10 minims.

The author's technique and after treatment was followed with uneventful recovery. The patient returned home in about two weeks in good condition. Patient returned to Omaha in two months and reported doing a full day's work on the farm which he had not been able to do for years. He had gained in weight and was robust and strong and his anemia had disappeared. He had a slight attack of neuralgia this spring probably due to an acute reinfection of his antrum but he reports his general health as being excellent. The right ear stopped discharging soon after the operation. The ear has remained dry and the perforation is healed.

Case 3.—Mr. D. F. C. December 8, 1920. Age 63. Referred by Dr. G. A. Young, with diagnosis of trifacial neuralgia of infraorbital branch left side. Patient a robust man says he has been suffering from attacks of neuralgia with sharp excruciating spasms for the past two years. Have been so violent for the past three weeks that he has lost sleep and has an extremely drawn and worn expression.

Examination: Scant dry bloody scabs and mucopus in left middle nasal fossa, mucus in right middle nasal fossa.

Tonsils: + Teeth: Several stumps above and below. Pharynx: Seems clear.

X-ray: Right Antrum+ Other sinuses+
Left Antrum+ Other sinuses+

Dr. Young advised draining the antra. Operation: ether, both antra opened. Bony walls on both sides seemed to cut normally. On opening the antra the mucous membrane was thickened and covered with adherent slimy foul smelling transparent secretion. The author's technique was followed at operation and for postoperative treatment. The dental stumps were extracted. The patient had a slight twinge of pain the first two days but no paroxysms. He made an uneventful recovery and returned home in about two weeks having had no further pain. He reports at writing of this paper as being in excellent health and has had no return of his neuralgia.

My conclusions are as follows: Treatment of the maxillitis is the operation of choice because:

1. It removes a dangerous focus of infection.
2. It preserves the function of one of the most important cranial nerves.
3. It safeguards the eye against ulceration of the cornea, as a cornea that is anesthetic is particularly liable to injury even with the operation on the posterior sensory root which leaves the sympathetic fibres of the ganglion intact.

In the treatment of tic douloureux, we are dealing with a persistent condition, and therefore I present these cases merely as a preliminary report as enough time has not elapsed to judge as to the permanency of results. I trust that in the future observations of others may be added as to the relationship of chronic maxillitis to tic douloureux.

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DISCUSSION

Dr. Fred Teal, Lincoln:— Dr. Lemere's paper I consider a valuable contribution to our rhinological literature. It is in line with the modern treatment of disease. He tries to locate the cause of the trouble, and then tries to apply the rational remedy in removing it. He does this through correct surgical principles — through free drainage.

No matter how we may criticize his ideas in this paper, we must admit he is, in a way, breaking new ground.

We have had instances of "tic" cured through rhinological measures, but I think without exception the cases of "tic" which have been cured in this way have been classed as due to reflex cases, and not from a direct cause of a pathological condition of the nerve itself.

Dr. Sluder, in a book written a few years ago on "Sinus Diseases as the Cause of Headaches," cites six or eight cases of "tic" cured by using rhinological measures; but in connection with these mentions injection of the nerve also, and in no case was there any claim that the elimination of the sinus disease cured these cases. There was no direct attack made on any of the sinuses, with the exception of the ethmoid.

That brings me to the point where I would extend this caution: Rhinological literature is full of theories for the cure of various disorders, which have long since been forgotten. I hope Dr. Lemere will not get as enthusiastic as some of our nose men have in their attack on the ethmoids and sphenoids. Dr. Sluder had a period when he classed a great many of these troubles as due to sphenoiditis and ethmoiditis. I think he was over sanguine in those troubles. Dr. Lemere has conclusively proven the antrum does enter into the cause of "tic" from the fact he has cured some of these cases.

I think the really important point in Dr. Lemere's paper is the recognition of a low grade infection of the antrum. He says that heretofore we have considered if there did not show a distinct shadow on transillumination or with the x-ray, it was considered to be free of antrum disease. We know that is not so. It is proven in our pracice every day. It may be due to the fact the technique of the X-ray is faulty, yet there must be many cases which, upon investigation, will be found to contain a pathological condition.

The doctor did not take up his idea of treating these cases very extensively. As far as his paper went, I have nothing but praise for it.

In connection with the matter of diagnosis, I should like to suggest one thing which I think is original with Dr. Woodard and myself. We have tried the measure for a short time and are not prepared to state what it will bring forth. That is this: It is a simple matter to perforate the lateral wall of the nose and that of the antrum. The Mayo's have made it a practice for years to wash out the antrum, subsequent washings being done with a tube shaped like a eustachian catheter. Our idea was it was just as easy, after you had perforated the wall of the trocar and cannula, to insert a Holmes pharyngoscope—an electrically lighted tube by which you look through the end and explore a dark cavity. I feel with a modification of this little instrument, it will be but a short time until we can look right into the antrum. While there may be a little risk attached to it—infection might occur through that procedure—why should we fear it more than the insertion of a trocar?

Dr. G. Alexander Young: "One swallow does not make a summer," but I want to bear testimony to the efficacy of the treatment as far as my patient's present condition is concerned. The man had had pain for seven years off and on, and for six weeks it had been very severe. In this particular case, it is a fair assumption the patient had suffered from tic douloureux.

I found that the man had infected antra and suggested that he have them drained before going to the Mayo's for resection of the posterior root. He accepted my service and I was much gratified by the result.

While not accepting an infectious origin for all cases of tic douloureux, I believe that this causative factor is of sufficient frequency to require careful examination of the sinuses of all our patients suffering from trigeminal neuralgia.

Dr. F. E. Coulter: I was very much interested in Dr. Lemere's paper, as I have had an opportunity to study tic douloureux and to treat it with varying degrees of success, not only by operative methods, but by injections, as well.

The question of disease of the antrum is undoubtedly one of the important points to be taken into consideration. Dr. Lemere is certainly to be congratulated in calling attention to one of the etiological factors for these cases. I have always maintained if we were able to determine the etiological factor or factors in connection with any disease, it would not be a great while until that particular form of disease would be relieved. So that Dr. Lemere is calling our attention to a point I consider of great interest and importance.

I know some of these cases of tic douloureux will, whether treated or not, have intervals of varying duration, extending over months and sometimes years, without any treatment whatsoever, when they are quiescent. The fact that the disease usually occurs in the degenerative period of life, leads me to believe, and I have not changed my belief from the doctor's paper, that these degenerative factors are most important in combating this disease.

I should like to make this suggestion to the doctor: I would be pleased to hear from him one year from this time, not only further reporting progress in the cases he has already given, but the additional factors he may have along this line of treatment.

Dr. James M. Patton: I think we may congratulate ourselves in that Dr. Lemere has seen fit to make this report to this Society. Whether he is right or wrong, it is an important thing when any one comes out with something that is apparently a real step in advance.

It has been several years since I treated a case of tic douloureux, but I can remember the intense pain some of the patients suffered. As inferred there is a possibility the cases reported might not be tic douloureux. If they suffered the pain of tic douloureux with the other classical symptoms, it makes very little difference whether it was the true tic or not, so long as the doctor was able to relieve the symptoms.

Dr. Lemere does not claim this will cure all cases. If his reasoning is correct, so long as there are 50 percent of cases in this middle branch and 25 percent in the inferior, it is reasonable to suppose there is something causing an increase of cases in this particular branch. So long as he has relieved the pain in the cases from a middle branch, it is reasonable to suppose he has found at least a cause for part of them.

As an oculist, I am interested in this procedure of Dr. Lemere's. As Dr. Young said, he had planned to send his case to a distant city to have the posterior root cut. Now, this root was not causing as much trouble as the ganglion itself, yet we see cases of corneal disturbance as the result of tampering with this nerve. So if Dr. Lemere is able to relieve the patient of the danger and discomfort from destruction of this nerve, he has done the patient a great service.

I am in hopes this 25 percent of cases may be due to antrum condition, and that other rhinologists will have the same success in correcting this trouble that Dr. Lemere has had.

Dr. Lemere, Closing: I wish to thank those who have so ably discussed this paper.

The time limit prevented my giving the paper in its entirety, and many of the points brought up in this discussion will be found answered in the published paper in paragraphs which I have had to omit in reading it.

The diagnoses were made in compliance with the symptoms mentioned in Patrick's paper. In two of my cases I have had the support of well known diagnosticians who had already made a diagnosis of tic douloureux. The other case was not seen in consultation but had the symptoms of a true trifacial neuralgia. If one is careful to exclude sinus empyema pain and toothache, I do not see how the sharp shooting, stabbing pains of true tic douloureux can easily be mistaken for anything else, or how there could be the least doubt in regard to the diagnosis of any of the cases mentioned.

These cases were all benefitted so greatly in general symptoms, that the operation would have been worth while even if the neuralgia had not been relieved.

The paper is presented mainly with the object of getting others experience as to how far tic douloureux may depend on low grade chronic antrum infection and in directing attention to this as perhaps the most probable cause.

FAT EMBOLISM.*

Charles O'Neill Rich, M. D., Omaha, Neb.

My interest in fat embolism was stimulated by the discussion of a case of multiple fractures at one of our surgical conferences at the University Hospital last fall. I am indebted to Dr. C. A. Hull, in whose service it occurred, for the privilege of reporting it.

L. S. (Case No. 4576) a young boy of 19 years of age, by occupation a shipping clerk, was admitted Sept. 24, 1920 at 9:15 P. M. suffering from fracture of the left humerus, surgical neck of the right humerus and middle third of the left femur, sustained as the result of a motorcycle accident. On admission he had a temperature of 101, pulse 124, respiration 33 and regular, pulse of good quality but rapid, fully conscious. The following day his temperature was 103°, pulse 136, respiration 28 and irregular, pulse full and bounding, stuporous, restless, irrational, perspiring freely and evidently in pain. Urine positive for fat. Blood hemoglobin 90%, red blood count 5,000,000; leucocytes 12,500, polys 84%, lymphocytes 18%. Sept. 26, temperature rose to 105°, pulse 144, respiration 36 and very irregular, cough, moist rales in chest, cyanotic, pulse of poor quality and much weaker. Urine showed a visible amount of fat, fully a half inch rising to the upper part of a test tube, three-fourths full of urine. Sept. 27 maximum temperature was 106°, pulse 200, respiration 52, pulmonary edema increased, also cerebral symptoms. Died at 5 P. M. It is most unfortunate that an autopsy was refused. Based on the symptoms, physical findings and marked lipuria, a diagnosis of pulmonary fat embolism was made.

The first mention in the literature was by Lower in 1669, who as the result of animal experiments by injecting milk, described the profound dyspnoea with which the animals died. Magendie in 1827 injected olive oil into the veins of dogs and discovered that liquid fat would not pass through the smaller vessels, producing a mechanical block, which he attributed to increased viscosity of the blood. He described the symptoms of fat embolism, portraying the pathological changes in the lungs and noted the presence of oil in the blood vessels and alveoli of the lungs.

The first description of fat embolism in man is attributed to MacGibbon of New Orleans in 1856. A more thorough description was given by Von Recklinghausen in 1884.

It is a clinical fact that fat is demonstrable in the urine for two or three days following most fractures of long bones. This is not the case, however, following fractures of short bones. Symptoms do not result in all cases, the formation of fat emboli depends upon the amount and distribution of the fat. With a large amount of fat in the circulation, the more likely are important regions to become overwhelmed.

Fat embolism is by no means rare following operations for osteomyelitis, orthopedic manipulations, rupture of a fatty liver and abdominal sections. Bissell reports in the July 1917 number of Surgery, Gynecology and Obstetrics, six cases of fatal postoperative fat embolism in the necropsy service of the Mayo clinic. Three of these followed breast amputations, one ventral herniotomy, one craniotomy for brain tumor, and one laminectomy for spinal cord tumor.

There is a great similarity between the symptoms of shock and fat embolism. Two theories have been advanced in an endeavor to prove that fat embolism may be the cause of shock. Porter in the Boston Medical and Surgical Journal 1917, page 176, says fat injected intravenously or gaining access to the venous circulation after fractures or laceration of the subcutaneous tissues, passes through the pulmonary vessels, but lodges in the peripheral systemic vessels, and thereby produces circulatory failure by some mechanism, as yet not clearly explained. A second theory advanced by Bissell in Surgery, Gynecology and Obstetrics 1917, Vol. 25, page 8, is that the circulatory failure of postoperative or traumatic shock is caused by the lodgement of fat emboli in the pulmonary vessels, making it synonymous with pulmonary emboli. He says it is a frequent cause of postoperative shock and in his discussions cites Whartin as having recorded the effects on the heart and circulation of injections of oil into the heart directly, into the jugular vein and into a heart compensating for an artificially produced valvular disease. Furthermore, the injection of oil directly into the right auricle of a dog, causes a marked fall in the carotid and a rise in the auricular and jugular pressures and this is precisely what we know to be the case in instances of so-called surgical shock, the patient literally bleeds to death into his own veins.

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*Read before the Nebraska State Medical Association, Lincoln, May 9-12, 1921.

Fat embolism is the accumulation of liquid fat in the capillaries following injury to adipose tissue, either as the result of fracture of a long bone, an accidental or a deliberately made wound. Fat droplets may be detected frequently in the discharges, the tension at the site of the wound as a rule is greater than in the cut ends of the veins and lymphatics, and as the result the fat is forced into the open mouths of these vessels. This may take place immediately, or the taking up of fat may proceed for some time following the injury.

Whartin in The International Clinics, 13th series, Vol. 14, page 207, says, the amount of free fat liberated into the blood stream is often almost incredible, single sections of the various organs and tissues of the body showing on microscopic examination, such numerous emboli that it would seem that the total amount of fat contained in the emboli must far exceed the fat content of the injured bone.

The fat droplets taken up by the lymphatics pass the regional lymphnodes and enter the thoracic duct, thence pass through the venous circulation into the lungs. This passage of fat through the thoracic duct usually occurs some time after embolism of the pulmonary vessels, from the fat gaining direct access to the veins. Hence exacerbation of the symptoms is noted when the second supply of fat reaches the lungs and if the patient survives the first embolism, he may succumb to the second. Blocking up of the pulmonary and cerebral vessels. As the fat passes into the arterial system, it may be forced through the systemic capillaries back into the veins and produce a definite cycle of symptoms.

In some of these cases when the entire circulatory system is flooded with fat, the apparent injury to the bone or adipose tissue may be slight.

Evidently both individual and local factors serve to determine the cause of the fat and its effect upon the organism.

Fat in the blood is quite a common condition, but does not always produce serious symptoms. Personally I do not doubt that there is after every fracture and injury to adipose tissue a certain amount of free fat in the blood. In many cases of fracture in adults, fat may be found in the urine in small amounts. This is only true following fracture of long bones. There is a peculiar periodicity in the appearance of lipuria following fracture, first described by Scriba in 1878, fat appearing in the urine in varying amounts on different days. In the presence of fat, albumen and occasionally blood are found. As the amount of fat increases in the urine the urea percentage falls.

The symptoms of fat embolism vary according to the organ which receives the greatest number of emboli. The earlier observers concerned themselves with fat embolism of the lungs alone and failed to examine the brain or consider the possibility of a fatal cerebral fat embolism. Not until Scriba's paper appeared was the importance of fat embolism of the brain recognized. Scriba experimentally produced fat embolism and found the glomeruli of the kidneys plugged with numerous clusters of fat cells and here and there, especially beneath the capsule, were several small ecchymotic areas. The liver was the seat of marked venous congestion and frequently fat cells were seen in the periphery of and within the brain and cord. The veins of the pia were filled with dark blood and the arteries were completely or almost empty. On cross section numerous hemorrhagic foci were evident and red blood corpuscles in considerable quantity were observed in the perivascular spaces. In some cases the tissue was edematous, in some a sero-sanguinous fluid was found in the ventricles and in some there were areas of softening and capillary apoplexies. The emboli were most abundant in the vessels of the pia and choroid plexus.

Macroscopically the brain shows scattered areas of miliary hemorrhages which has been termed by Schmidt, cerebral purpura.

Recent investigation has not upheld the dictum of Scriba, that the fatal outcome of fat embolism is always due to a plugging of the cerebral vessels.

Whartin distinguishes two types of fat embolism, clinically, namely pulmonary and cerebral. He says the symptoms of the pulmonary are less characteristic and more difficult of diagnosis. Dyspnoea, cough, hemorrhage, cyanosis and symptoms of pulmonary edema. In the so-called apoplectiform cases, these symptoms may develop immediately after the injury or they may be delayed in their appearance. The diagnosis is extremely difficult and frequently is not made until the autopsy findings reveal it. There may be an initial free interval before the respiratory symptoms appear, restlessness, headache and stupor may be the first symptoms or a respiratory difficulty may suddenly develop and the patient suffer from air hunger. The heart beats are more frequent, irregular, and the tension low. Precordial or epigastric pain may be felt. Right heart is dilated. More frequently the temperature is low at first and rises gradually after a few hours. Respiratory rhythm may be irregular. Resonance is slightly diminished and becomes somewhat tympanic in character. Moist rales are heard over the base. Free fat can be demonstrated in the urine.

In fatal cases, asphyxia may rapidly develop following closely upon the trauma and the patient dies in apparent collapse. Between the fatal and nonfatal cases there is no sharp line nor is there such between the respiratory and cerebral forms. The first form usually comes on soon after the injury but may be delayed, while the cerebral variety develops later, although it may appear within a few hours. In the respiratory form cerebral symptoms may develop as the result of anaemia of the brain and carbonic acid increase in the blood. The cerebral form usually manifests itself after an intervening period, often three to eight days but may come on after a few hours.

The symptoms of fat embolism may resemble very closely those of shock, in fact differentiation at times is impossible clinically. In the cerebral form there is great restlessness, muscular twitching, convulsion and finally paralysis. Nearly all cases show marked dyspnoea. Some cases recover spontaneously. Others are considered to be in a condition of delirium tremens or to be suffering from an embolus of a septic type.

Dennis' rule for fat embolism, as a means of differentiation is, shock three hours, fat embolism three days and pulmonary embolism three weeks.

I am of the opinion that fat embolism is a frequent cause of death following certain surgical procedures involving injury to bones and adipose tissue when the cause of death is unrecognized. The fact that it is so difficult of diagnosis makes it doubly important to bear it in mind and take every precaution to prevent it, in such cases where it is apt to occur. It is recommended by Burger, that an immediate application of an Esmarch bandage will prevent further distribution of fat already broken up, by the blood vessels and lymphatics. Care should be exercised in the manipulation and transportation of all fracture cases.

Wilms, quoted by DaCosta, treated one case of fat embolism successfully by making a fistula in the thoracic duct. Great care should be exercised in making an incision through adipose tissue, to avoid any unnecessary traumatism and injury to the parts, and, in handling such wounds, it is most essential to obtain complete haemostasis. My own practice in closing wounds which have involved any considerable amount of adipose tissue is to place a provisional drain of rubber tissue in the angles of the wound, removing it after fortyeight hours. Patients with fat embolism should have the parts at absolute rest, if an external wound exists, it should be incised and free drainage established, stimulants administered, the use of external heat and the inhalation of oxygen. We cannot accomplish much by treatment, but our efforts should be toward avoiding if possible the formation of fat embolism, which I believe to be a more frequent complication and cause of death following certain surgical cases, than is generally recognized.

DISCUSSION.

Dr. B. B. Davis, Omaha: I do not feel as if a paper of this kind should pass without some discussion. It is an admirable paper, and the doctor has gone into the literature and history of this condition pretty thoroughly. I feel especially interested in it, inasmuch as I saw the case reported by the doctor. I think his final statement that these emboli are more frequent than generally suspected is undoubtedly true. In a number of instances, not only in cases of fractures, but after other conditions, I have seen symptoms arise which I felt confident were due to minute emboli which did not kill. It was only a supposition, but I believe in a good many cases it is one very small embolus that produces trouble in the lung, and some may get into the brain, and still the patient may recover.

I am very glad this was brought up, because I think we should be on our guard when we are called to cases of fracture of the long bones, because it is frequent in cases of this kind. In cutting through a large amount of fat, I think the possibilities of fat emboli should not be overlooked.

THE PROBLEM OF NUTRITION IN CHILDREN OF SCHOOL AGE.*

W. O. Colburn, M. D. and E. V. Wiedman, M. D., Lincoln, Neb.

The late World War has stimulated us to look to better development of our children. Our draft boards rejected 35% of the men as physically unfit, and again 40 to 80% of those accepted in the various drafts were found wanting. The state of the national health as revealed by the draft has spurred congress to draft and hold hearings upon comprehensive measures for physical education. The crowding of people into cities has much to do with our national health. Think of a million people housed together, dependent upon perishable food stuffs transported from a distance, which foods must undergo drying, heating, or the addition of preservatives, most of which rob the food of one or more of its essential constituents. Today in contrast to yesterday, we have our highly milled flour, polished rice, and fine granulated sugar, which in appearance are more pleasing to look upon than the cruder forms of olden days. Likewise, this more or less complete sterilization of our food stuffs has brought upon us a state of malnutrition, until we are cognizant of the fact, and today not only medical literature, but the press is telling us all about vitamines in such glowing pages, that the fountain of youth seems to be almost within our grasp.

Hess tells us that vitamines are not always constant—animal life and likewise plant life may show a deficiency. Human milk varies according to the nature of the woman's food; and in some instances is deficient in antiscorbutic vitamine, owing to peculiarities of diet or to poverty. He tells us that foods subjected to high heat for a few moments is less destructive to vitamines than when subjected to lower heat for a long time. For example—milk brought to a boil has more life than Pasteurized milk and dry milk heated to 230 degrees F., for a few seconds is better than boiled milk.

It is necessary for us to have some standards of nutrition and growth and Holt has given us the weight for height tables, replacing the old tables of weight for age. Weight for age alone is not a reliable index of a child's nutrition. It shows such a wide variance in different races, communities, families and individuals. The weight for height also shows some variations; but these are within a relatively small range. In general, weight for height is a reliable index of a child's nutrition and this varies surprisingly little even in those of different races.

Not every child, who is below weight for height and age is to be considered undernourished. There are individual variations depending upon race, family inheritance, etc. It is pretty generally agreed that for practical purposes children between the ages of 5 and 13 years, who are 10% or more below the normal average of weight for height and age should be considered undernourished; such children will usually, on closer examination, show other evidences of being physically below par. For children from 13 to 18 years a slightly wider variation from the average may be regarded as normal.

Those who weigh for their height much above the standard average cannot be regarded as normal with respect to their nutrition. It is generally agreed that 10% or more overweight is suggestive of the abnormal, and is frequently due to too little exercise and eating too much especially of fattening foods, such as milk, cereals, potatoes, bread, butter and sweets.

Malnutrition is a great factor and should be corrected at an early age. Perhaps a proper start in feeding, beginning with the newborn infant, teaching the mother that no artificial food is as good as breast milk, and perhaps, at the same time, trying to teach the profession that practically all breast milk is good and that most errors of breast feeding are simple and easy of correction, without sacrificing this, the supreme food for the infant, perhaps, if our efforts were made at this, the beginning of life, we would have less need of the present enforced study of nutrition in our schools.

Much is being done in our public schools today to better the physical makeup of our pupils, and much good is being accomplished by this movement. Like all movements of a similar nature they will not be perfected in a single year, and one of the reasons for presenting this paper is to arouse a discussion of this subject, so that as a profession, we may be better able to give an opinion when called upon to do so.

The writer therefore, states his personal views briefly without argument, for the purpose of discussion:

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1. I believe that a careful record of weight and height should be periodically made in the schools and if 10% below the standard, the child should be referred to the family physician for a careful physical examination.

2. Any underlying defect such as diseased tonsils, adenoids, careous teeth, nephritic conditions, including enuresis or any physical abnormality, should first of all be remedied.

3. I do not believe in the indiscriminate use of milk for every case of malnutrition, much less do I believe in the feeding of milk and crackers in school at the midmorning hour. I believe the present milk propaganda is extreme, and that in practically no case should a child be fed over 24 ounces of milk a day, and for many children 16 ounces would be better.

4. In city or rural schools, I would favor a noon luncheon if properly prepared by a dietician, and I am sure great good could be accomplished in the teaching of cleanliness and table manners during this hour. No doubt the association of other children eating would prove a great stimulus to the anorexia so prevalent in many children.

5. It has been proven possible to carry on nutritional work in the public schools without rest periods or free milk and obtain gains in weight and height. To gain has been a responsibility placed upon each undernourished child. They are taught definite ideas of food values, of growth stimulants, of personal hygiene, of rest, of regularity of habits, etc. Appeal is made to their fondness for rewards, their love of competition, their pride in themselves and their records. In fact this individual responsibility has accomplished more in one of our great cities, than the equipping of rest rooms, the feeding of milk, and the open air school.

6. School nurses, to go into the homes and teach the mothers proper diets for their children, in fact also inform the mother of all the things taught her child regarding personal cleanliness, hours of sleep, etc.

7. Medicines are a very small factor in fighting malnutrition. Perhaps some anemias are helped by iron or sodium cacodylate. A low hemoglobin percentage is associated with anorexia and the child is tired. These cases frequently are helped by hypodermic administration of the above named drugs.

Nutrition in our growing children is one of the greatest problems of the age. It involves not only food, but exercise, fresh air, proper hours of sleep, sanitation, and many other things.

In this new movement, the physician will be the first and last consulted to direct progress. In the smaller towns and rural districts, it will be largely up to the physician to start the work and devote considerable time to its development.

The success in this work will be the individualizing of the cases. Infant feeding never made any advances under set rules of feeding, such as so many ounces of milk, lime water and sugar for a certain age. Not until we began to take the babies individually and to observe the weight curve and study the stool in relation to the digestion of fats, carbohydrates and protein, did we make great progress. Likewise, the extreme malnutrition cases cannot be worked out in any group plan, but will require study and individual care.

DISCUSSION.

Dr. Clyde Moore, Omaha: The results of examination of recruits for the army has probably more than any other one thing, forcibly impressed the need of nutritional reform among the children.

There are, to my mind, several distinct stages in the problem of nutrition of children.

The first is the period from birth to 9 months. In this period the nutritional education of the mother should be started. She should be impressed with the great importance of breast feeding. At the University of Nebraska Medical School we have organized a "New-born" Clinic. We take charge of all the newborn babies from the obstetric wards of the hospital and follow these cases for 6 months, trying to teach the mother the value of breast feeding and supplementary feeding, if necessary and also give her some idea as to general hygienic care of the child.

This is important for two reasons: First, if the child is handled properly, it leads to a child that is physiologically more perfect. It saves him the errors in diet later in life; and secondly, it educates the mother. A mother who has been thoroughly imbued with the importance of proper nutrition of the child during its first few years of life is not liable to depart from this training when that child gets older, and will probably be as careful during the period of school age as during the period of infancy.

There is another time I think equally important, that between twelve months and two years. That is the time the child develops its food likes and dislikes, and it should be taught to eat a perfectly balanced diet—to eat vegetables, meats, and something besides milk. If large quantities of milk are given to this child, it will grow up to like vegetables and things which contain the vitamines and salts which we are taught are necessary.

The third stage is the period of school age. Until recently I thought the nutritional work in the school consisted merely of taking children under weight and feeding them milk. I have seen children undernourished because they have too much milk. I was recently shown the work being done.

They divide the children into two groups; first, the children free to gain, having no organic defects. This group is separated from another group with organic defects, tonsillar affections, adenoids, defective teeth, etc. In this latter group the parents are advised as to what is necessary to remove the defects.

The first class are carefully studied as to the etiology of the malnutrition. The children are taught the common rules of hygiene such as the care of the teeth, the necessity of cleanliness, the importance of regularity in eating and the kind of food to eat. They are weighed regularly and a spirit of competition is inculcated into them by awarding a gold star to the one making the greatest gain. Certain children are given milk at lunch period and allowed to rest for a short time. Great stress is laid upon rest as an important factor in proper nutrition. The parents are shown by means of the charts just what the child's condition is nutritionally and what it can be and how to do it. Their cooperation is earnestly sought and if secured is the most valuable object attained.

Dr. Floyd Clarke: I want to emphasize one or two points Dr. Colburn brought out. One is the importance of breast milk. I do not think many weeks go by but we see youngsters whose nutrition has been very much lessened because some one suggested they be taken away from breast milk. There comes the danger of summer diarrhoea, which can be eliminated if it is kept on breast milk. It is just as valuable to keep the baby on breast milk for a certain length of time as it is important not to keep it too long. In the Italian districts, the mothers are prone to keep their children on breast milk too long.

The importance of close observation should be emphasized, insisting upon their coming to your office every ten days or two weeks so that you may see them. If the baby is not gaining, supplemental feedings will often help out.

Another thing that may be of assistance is the sodium cacodylate that was mentioned. We are satisfied it does help in some ways. Given hypodermically, it is of assistance in making them hungrier, I am satisfied it increases the hemoglobin in nearly every case. It improves their nutrition. It brings them to your office so that you may observe them.

Dr. A. B. Somers, Omaha: There is one point I want to emphasize, and that is sleep. The only time the child grows and restores vital energy is when he is asleep. How much should he sleep. A child at two years old should sleep twelve hours out of the twenty-four. In infancy—up to six months—it should sleep twenty hours out of the twenty-four. These children beginning to go to school—from seven to ten years—should sleep ten hours out of the twenty-four.

There is a difference between resting and sleeping. They do not sleep enough. They rest their muscles, but do not sleep.

I think in the years to come that point is going to be brought more to the attention of those dealing with children.

Dr. H. J. Lehnhoff, Lincoln: I have always thought we should become more interested in food. The work the profession as a whole does in prophylaxis means a great deal more than the individual cases we treat. When we come to consider certain diseases we know are partly the results of misguided diet, I cannot help but think we should pay more attention to the food we take than we are paying.

When we consider a simple disease like beriberi, with its severe symptoms, and sometimes death, from the simple reason we have deprived the individual who is living on rice from the pericarp of that rice, we surely should be interested in what we put into the stomachs of our patients from the prophylactic standpoint. When we consider the diseases that came to the fisherman of Labrador when he changed his food from dark bread to light—diseases characterized principally by nervous disturbances—motor disturbances of the lower extremities, of the movement of the diaphragm, night blindness and other nervous symptoms—when we consider they resulted from as simple a change as that from eating dark bread to eating light on their fishing trips when they had nothing but bread to eat, it is time we should begin to look into the diet of our people.

When we consider pellagra, which is a disease that exists only where the sanitary and food conditions are bad, it is time to look into diet.

I do not like to hear these men discuss acidosis of children and not say anything about diet. Maybe they should not. But I believe there should be something in regard to diet in relation to acidosis, acute, as well as chronic.

Consider the matter of teeth. As long as I have been in the practice of medicine, dentists have been considering the prophylaxis of teeth, and year after year there are more teeth decayed than ever before. They will never stop the decaying by treating teeth locally, in my humble opinion. They will never stop other teeth from decaying by treating the mouth locally. I think it must be done by rational diets. When we depart from nature's ways we get into trouble. You cannot highly mill our cereals and subject canned stuffs to a great heat and take all the minerals out of our sugars without doing some damage to the individual who eats that kind of food. I think it is time, if we are going to do our work in prophylaxis, to give more attention to the matter of food.

Dr. Inez Philbrick, Lincoln: Like many other good things the profession has tardily taken up, the matter of looking after the nutrition of children in any large sense, was initiated in the schools by the laity. School lunches were instituted in schools where it was found that many children were subnormal physically, and could not make their grades.

The journals contain many articles proving absolutely the benefit to the school children of mid morning school lunches, benefit both physical and mental.

I think it is tragic when men of Dr. Colburn's standing obstruct malnutrition work in the schools. I do not believe there is a father present who does not approve giving his children a mid morning and mid afternoon lunch. Young children need these lunches, and the only place school children can get the mid morning lunch is in the schools.

Already our courageous and enthusiastic hygiene director, Dr. Katharine H. K. Wolfe, has gotten results which prove the value of nutrition work already done in Lincoln schools.

We cannot reach the malnutrition amongst 8000 children in the Lincoln schools through the family physician or pediatrist, or both. It must be handled in a big way by public money and state activity. I am delighted to see it beginning to be handled in this way. I hope the nutritional work in the public schools will largely put the family physician and pediatrist out of business.

Dr. H. B. Hamilton, Omaha: If you will look in the literature at most of the work done on diets—you will find that practically all of the advances have been made through the work of the pediatrician. No other class knows so well the number of calories given the patient.

With reference to our work in acidosis, there has been an enormous amount of work done in that line, but we have not reached any definite conclusion. We have tried the elimination of fats and proteids. Some we can reach and others we cannot. I think it is one of the most important matters before the pediatricians and general practitioners today. We find in patients who are in institutions where the nourishment is below par, the number of cases enormously increases. It is a matter of nutrition from start to finish. None of us can give too much study to it.

Dr. Katharine H. K. Wolfe, Lincoln: We have a special malnutrition class in Whittier School. We would be glad to have any of our specialists in children's diseases visit this class of twenty-five underweight children. The causes for underweight in no two children are the same. Four or more causes are usually found on examination of the children. These children receive a complete examination with the parents present, who assist us in obtaining a complete history of the child's living habits and environment. Improper food and improper food habits are not always the most important causes for malnutrition. Other factors enter in, such as physical defects, over fatigue, poor sanitation and the psychological element. When they are free to gain, they do gain frequently from two to three pounds in two weeks.

One little girl, the daughter of a judge, who has always been anemic and underweight, in one month gained 4.2 pounds. Spring vacation came on, and the child fell back to her old habits of living; she forgot to take her morning and afternoon lunches, sufficient sleep, outdoor exercise, etc., in consequence of which she lost three pounds in two weeks. This loss of weight aroused a closer cooperation of both child and parents, and in the following two weeks she gained 3.3 pounds.

Five meals are recommended for these children by Dr. Emerson. In his work on thousands of children he has not found a single case, after the causes for malnutrition were removed, in which a child did not gain more rapidly on five smaller meals than on three large meals.

When a child has no appetite for the noon meal as a result of the morning lunch, we examine the tongue. It is nearly always coated. Many times we find they eat too many acid producing foods, such as meat, eggs, fish, rice and grains, and not enough vegetables and fruits. Change their diet and as a rule the tongue clears up.

Constipation is cured in most cases in from four to six weeks without drugs by providing sufficient alkali producing foods, such as plenty of fruits and vegetables, substituting bread made with whole grain flour for white bread, and drinking plenty of water.

Where a child cannot take care of the morning lunch and has no appetite for the noon meal, there is some cause for this lack of appetite. The New York State Ventilation Commission in 1917 found where they put children in a class room with no fresh air, and then placed them in class rooms with plenty of fresh air, and fed them standard weight lunches, the children where they had no fresh air, at the end of 9 weeks experiment, ate 10 percent less food than where the air was fresh. Naturally those children will be underweight.

The Children's Bureau of the U. S. Dept of Labor issued a publication No. 35 or "Milk the Indispensable Food for Children," which sets forth clearly the reasons for the title statement. In examining the children in one of our schools we found 67.8 percent with defective teeth; with few exceptions they drank coffee and used canned milk. Milk is known to be the most important food to furnish the necessary lime salts for bones and teeth, as well as potassium and phosphorus which are essential for healthy growth.

In examining hundreds of these children we find it is rare that they have not some evidences of soft bone, such as knees turned forward and inward and ankles turned inward. It is believed no food can take the place of milk in the normal building up of these children. If they cannot digest the milk there may be a diminished alkali reserve which may be corrected by adding lime water to the milk for a short time and prescribing alkali producing foods.

Dr. W. O. Colburn, closing: I have a few well balanced diets for children from six to ten years of age, and from ten to fourteen, if anybody would be interested in them. They were not prepared by me, but I have used them in my practice.

One speaker emphasized sleep. I think it should be emphasized. There is no question that too many of our children see too many picture shows, and are not able to get up to take their morning meal. They get up at 8:30 and are hurried on to school. Even the parents do not get up to start the child out. If they were up at seven and allowed to exercise, they would eat a fair breakfast and be able to carry on until noon.

I think Dr. Philbrick misinterpreted my paper. I did not mean to infer I was against the school proposition. I am strongly for it, but we do have some objections to it—mainly the mid morning feeding and too much milk. The milk that is fed is pasteurized. It is damaged by this process, and the addition of lime water to pasteurized or boiled milk is really conceded by the best authorities to make it less assimilable, lime water should be added to raw milk. A diet largely milk will cause anemia. We have been able to trace this out in our office a great many times. A child who drinks a quart or a quart and a half of milk a day will give a hemoglobin that is in the seventies.

It was my purpose in presenting this paper to arouse discussion, thinking I might learn something from it, and I think I have done so.

Before writing this paper, I wrote twenty-five letters to the leading pediatricians of the country, telling them what we were doing in our schools, and asked them for their opinion regarding the amount of milk any child should have in a day; also regarding the mid morning feeding. I have Dr. Holt's letter. He sent me a vast amount of other material. Dr. Holt stated twenty-four ounces of milk a day was sufficient for most children. In some instances he might allow a quart.

Dr. Grulee of Chicago emphatically said a pint in twenty-four hours was sufficient; that they should have balanced rations other than milk.

I think the tendency will be to give too much milk. I believe the work in our schools has been, on the whole, successful, but there have been a few complaints. Children who at first liked to take their glass of milk, after a week or two said, "I can hardly get the last of the bottle down." They do not eat any breakfast.

Dr. Katherine Rich of Chicago, in a late issue of the "American Medical Journal," admits she is against feeding in schools. I quoted her in my paper.

They are developing "nutrition schools" in the east that are going to be a great help.

I will admit many boys and girls can eat six meals and handle them perfectly well, and nothing can fill them up. But there are a lot of others who will not handle that much. I am in favor of three meals a day. I think it is sufficient for most of these children.

ALKALIS IN ACIDOSIS.*

Floyd Clarke, M. D., F. A. C. P. and Andrew Dow, M. D., Omaha, Neb.

The term acidosis is really not definite. The word itself would imply that the blood and tissues had become acid in reaction and incompatible with life.

Acidosis may be defined as a diminution in the reserve supply of the fixed bases of the blood and other tissues of the body. The condition is one of acid base equilibrium whereby the alkaline reserve of the blood is interfered with and the normal reaction becomes not acid, but less alkaline.

Very little is known of the effect of this diminished alkalinity on the tissues of the body. The analysis of the blood with respect to its alkaline content is taken as an index of the condition in the tissues of the body.

Acids are formed mainly in the body from the combustion of carbon, sulphur and phosphorous. A slightly alkaline reaction is maintained according to Sellards by:

1. Intake of fixed bases in food.
2. Elimination.
   a. carbon dioxide by lungs
   b. of acid by kidneys.
3. Neutralization of acid in the body by ammonia.

Protection is maintained in the body against acidosis by the presence of two weak acids namely carbonic acid and phosphoric acid. Weak acids produce a minimal chemical change in the blood and are quickly eliminated; carbon dioxide by the lungs and phosphoric acid by the kidneys. Still further protection is maintained because of the presence of a weak solution of sodium bicarbonate. This weak solution is able chemically to take on large quantities of carbonic acid without appreciable change in reaction.

The proteins play a part in maintaining the normal reaction and also in protecting the body against either acidosis or alkalosis. They are amphoteric and have the ability to combine with either acids or alkalis without undergoing chemical change themselves.

This "buffer" property was originally described by Henderson. By "buffer" is meant that ability of the blood to take on a certain amount of either acid or alkali without undergoing any appreciable change in reaction.

Very little is known concerning the condition alkalosis. Rowntree states that there are a great many patients injured with too large quantities of alkalis. It is brought about by the overcoming of the normal alkaline tolerance of the blood and tissues. Its symptoms are manifested by coarse tremors, rigidity and relaxation of the sphincters. J. L. Morse describes a case occurring in a girl ten and one-half years of age who had received two hundred and seventy grains of sodium bicarbonate. She developed a tetany with some drowsiness and the passage of large amounts of alkaline urine. In all she had seven hundred and fifty grains of sodium bicarbonate in five days.

Alkalosis probably does not occur except as a result of the overburdening of the blood and tissues with alkalis when administered for therapeutic purposes. Acidosis, or a condition of hypo-alkalinity, on the contrary, occurs not infrequently in pediatric practice. It is quite probable that varying grades of a lessened blood alkalinity occur, although this fact has not been proven satisfactorily.

The condition at times comes suddenly, without warning and with no history of previous disease. Its usual occurrence is, however, a terminal one, following a severe infection of one kind or another. It is particularly common with the severe diarrhoeas of infancy and childhood. Its most characteristic symptom is hyperpnoea, resembling the breathing in pneumonia, but without the expiratory grunt so frequently seen in the pneumonias of infants and children.

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*Read before the Nebraska State Medical Association, Lincoln, May 10, 1921.

Numerous laboratory tests have been described for the detection of acidosis. These are:

1. Direct examination of the blood.
2. Examination of the urine.
3. Estimation of the carbon dioxid tension of the alveolar air. Of these laboratory tests probably the most accurate is the method of Van Slyke.

Schloss and Stetson in twenty-seven normal cases found the carbon dioxid combining power of the blood to range from forty-six to sixty three cc. carbon dioxide per one hundred cc. of plasma. In seventeen out of nineteen cases of diarrhoea with toxic symptoms the figures ranged from thirteen to thirty-eight. If the carbon dioxid combining power with the Van Slyke apparatus is above forty it is regarded as normal. From thirty to forty a greater or less degree of acidosis is present and below twenty is incompatible with life.

It seems to us that the laboratory and the Van Slyke apparatus will be of assistance in differential diagnosis. One of us can recall at least two cases where the estimation of the carbon dioxide combining power of the blood would perhaps have been of assistance in differentiating between acidosis and intussusception.

The treatment of acidosis by the administration of alkalis is often unsatisfactory. This failure may, in part, be due to the fact that acidosis is not readily diagnosed clinically in children until it has reached a far advanced stage.

Rachford states that in his experience bicarbonate of soda in large doses is of no value. He has discarded its use entirely. Chapin and Myers admit that the use of bicarbonate of soda will often stop the hyperpnoea and give laboratory results found in normal children. Nevertheless the child may die.

Considerable variance of opinion seems to exist as to the dose necessary in our acidosis cases.

Howland and Mariott state that in infants under one year of age as much as one hundred and fifty grains in twenty-four hours may be necessary. Chapin and Myers advise seven and one-half grains for every forty pounds of body weight. Sellards gives the normal tolerance in adults as seventy-five grains, and gives this dose every two hours in his acidosis cases until the urine becomes alkaline.

Our own experience in the treatment of acidosis with alkalis has led us to believe that if one wishes to succeed in his care of these suddenly stricken children, some treatment other than alkalis is necessary. This statement was so characteristic of our experience that in one instance of postoperative acidosis we injected whole blood subcutaneously with the mother as donor. The little patient's prompt recovery was very gratifying.

In order to enable us to determine the proper dosage of a given alkali, the best alkali to be administered and the ability of the infants to absorb the alkali, a series of experiments was undertaken. We have investigated the carbon dioxide combining power of the blood with the Van Slyke apparatus on eighteen infants and young children. Fifteen of these estimations were in infants under one year of age. The blood was usually obtained from the longitudinal sinus.

By Mouth.

Case 1. Potassium Citrate 2 drams
Before—40 urine acid
24 hrs. after—49 urine acid
Case 2. Potassium Citrate 1½ drams
Before—40.9 urine alkaline
24 hrs. after—44.7 urine alkaline
Case 3. Potassium Citrate 2½ drams
Before—39 urine acid
24 hrs. after—48.5 urine alkaline
Case 4. Sod. Bicarb. 1½ drams
Before—39
24 hrs. after—47.5
Case 5 Sod. Bicarb. 2 drams
Before—39
24 hrs. after—48.5
Case 6, Sod. Bicarb. 2 drams
Diarrhoea: 6-8 loose green stools in 24 hrs.
Before—38.1 urine acid
8 hrs. after—40.9 urine acid
Case 7. Sod. Bicarb. 1½ drams
Before—40 urine acid
8 hrs after—46.6 urine alkaline
Case 8. Sod. Bicarb. 2 drams
Before—43.8 urine neutral
8 hrs. after—44.7 urine alkaline

Intraperitoneal

Case 9. Ringer's Solution: 30 cc.
Before—37.2
24 hrs. after—39

Case 10 Ringer's Solution: 30 cc.
Before—39
24 hrs. after—42.8

Case 11. Sod. Bicarb. grs. 20
Before—40
24 hrs. after—44.7

Case 12. Sod. Bicarb. grs. 20
Before—39 urine alkaline
24 hrs. after—39 urine alkaline

Case 13. Sod. Bicarb. 1 dram
Before—39 urine acid
24 hrs. after—55.1 urine acid
Complete anuria for 24 hrs. after intraperitoneal injection.

Per Rectum

Case 14. Sod. Bicarb. 4 drams
Before—39 urine acid
24 hrs. after—46.6 urine alkaline

Case 15. Sod. Bicarb. 4 drams
Before—47.5 urine acid
24 hrs. after—58.9 urine acid
48 hrs. after— urine alkaline

Case 16. Acute Nephritis
Glucose 10% intravanous: 250 cc.
Before—33.4
24 hrs. after—44.7
72 hrs. after—42

Case 17. Pneumococcic Meningitis, Broncho pneumonia
10 hrs, before death—30.5

Case 18. Diabetic Coma
Sod. Bicarb. 3 drams intravenous
1 hr. after—16.4

Conclusions: It would seem from our work in administering sodium bicarbonate by mouth, that absorption is very low, probably too delayed to do much good in our acute acidosis cases.

Ringer's solution when administered by the intraperitoneal route has no appreciable effect in increasing the carbon dioxide combining power of the blood.

A four percent solution of sodium bicarbonate given by the peritoneal route is almost negligible in its effect, in so far as increasing the carbon dioxide combining power of the blood is concerned.

Our observations would lead us to believe that larger doses than a four percent solution of sodium bicarbonate administered intraperitoneally have a very distinct influence in increasing the blood alkalinity, but there comes at once the danger of an alkalosis.

Solutions of sodium bicarbonate given by rectum are absorbed, but probably more slowly than by mouth.

The Van Slyke apparatus is practical and will no doubt prove to be of assistance both in diagnosis and differential diagnosis.

In common with other observers, we are led to believe that the alkalis when given in the usual way have very little if any curative effect in acidosis.

We feel that this work is only preliminary to much more work which should be done.

The number of cases which we have reported is scarcely large enough to justify us in drawing more than tentative conclusions which may be changed by further investigation.

It is regretted that we did not have a genuine acidosis case on which we could do a Van Slyke estimation, before and after, but such a case was not forthcoming during the progress of our work.

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DISCUSSION.

Dr. H. B. Hamilton, Omaha: The cases of acidosis have gradually been widening in the last few years. In our earlier days, the term applied to those in which there was increased excretion of the acetone bodies. At the present time, we recognize acidosis which is the result of diabetes in which there is increased excretion of the acetone bodies; also in babies and young children in which we know of no cause, but they have the prominent symptoms of acidosis.

There are cases due to nephritis, in which there is a diminished excretion of the acid phosphates, and diabetes in which it is probably one of diminished excretion of diacetic and oxybutyric acids.

There is a type due to infection. Some of them are probably due to partly the same condition present in nephritis; namely: relative anuria and diminished excretion of the acid products.

There is still another class which probably represents the largest class and probably the most important, because there is some hope of doing something for them. We recognize that the prognosis of acidosis is determined largely upon the cause which produces it. Because we are not able to cure diabetes, we know it is not amenable to cure.

In nephritis, the prognosis depends on the type of nephritis. In the acute, we recognize that deep type of respiration which is pauseless, the cherry red lips, and the ashy grey color of the skin. In diarrhoea there are other conditions. Not only is the body having a lessened alkalinity, but there is a negative water balance. There is also a negative balance with reference to salts. So we are dealing with those cases which have not only an acidosis, but a dehydration as well.

The profession has long been learning there should be as much thought given to the administration of a cathartic as an opiate. I think we have not yet realized the importance of giving a cathartic. When we think of the baby who is having twenty stools a day, we must recognize it is being dehydrated, and demineralized. By a cathartic, we are still further demineralizing and dehydrating it.

I do not mean to say we should not give a cathartic in the early cases, that have a high fever from the absorption of toxic products from the intestine, or there is fever from some other cause.

Dr. Clarke: I wish to state that Dr. Dow has prepared the charts and has done the laboratory work in our office.

Dr. Andrew G. Dow, Omaha: In determining this reserve alkalinity, it has been the combining power of the carbon dioxide in the blood as determined from one cc. of the blood stream. There are only two chemicals needed, which are caprylic alcohol, which prevents foaming, and sulphuric acid, 5 per cent. It can be done with the Van Slyke apparatus in just a few minutes time. We are determining the capacity of the bood to take on carbon dioxide. If there is for example sulphuric acid liberated, it calls upon the sodium and potassium bicarbonate to neutralize it, and forms sodium and potassium sulphate, and as they are excreted, the blood stream is lessened in its alkalinity. It cannot combine with carbon dioxide to bring it up to its normal alkalinity. Therefore our alkaline reserve is diminished.

That is the procedure and theory we are going on in determining this blood alkalinity. It takes just a few minutes to run it. As a matter of fact, anyone in country practice with a Van Slyke apparatus, and those two reagents I mentioned, could run the procedure through. We think it gives an index of the blood alkalinity before any clinical signs come on. We get a diminished alkaline reserve before even as you can see the urine shows it. We will get increased alkalinity with acid urine.

THE ECLAMPTIC THRESHOLD.*

Arbor D. Munger, M. D., Lincoln, Neb.

The word eclampsia is a descriptive term. When we use it we bring to mind that dread picture of toxemia of pregnancy in the extreme, a symptom complex which is most adequately described in all textbooks on obstetrics. The condition may occur during pregnancy, labor or puerperium.

There are many theories as to the etiology. Be it what it may, for the purport of this paper it will suffice to say that the condition arises from unknown causes pertinent to the pregnant state and analagous to the uremic state of nephritis, a disturbance of proteid metabolism with toxins liberated and circulating in the blood stream which should be, but are not, eliminated. The kidneys, liver, skin, intestines and lungs may one or all be at fault.

One can readily understand how a pregnant woman with a preexisting kidney lesion may present toxic manifestations, but given a clean, uncomplicated obstetrical history in a multipara, we are naturally in the dark as to the exact cause or pathological principle which ushers in this dreaded condition.

There is much in the literature of today relative to the treatment of the eclamptic attack but one finds little information of value bearing on the recognition of the preeclamptic state, or to what might better be termed the "eclamptic threshold," the recognition of which appears to be far more important than awaiting the development of such a state to try out the treatment. It is to this end that I wish to direct this paper.

We will be grievously misled if we rely wholly upon our textbook teaching, that the presence of albumen, casts, diminution of total solids and the decrease in the urea content of the urine are unquestionably the indication of an oncoming uremia, inevitable in fact, for we have all seen cases that have all of these symptoms and go to term without the least sign of trouble.

On the other hand we have been taught about the patient who will develop an eclamptic seizure without manifesting any evidence whatsoever of any preliminary toxemia.

I am of the opinion that such teaching is measurably erroneous; proper history and examination will usually yield information which can be correlated into a practical index for a prognostic forecast.

Ideally every pregnant woman today

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*Read before the Lincoln Academy of Medical Sciences, April, 1921.

should be tested for diminution in the total 24-hour amount of urine, with special reference to the ability of the kidney to excrete chlorides, the osmosis of water, for an increase in the 24-hour ammonia nitrogen content, for presence of the end products, acetone, diacetic and betaoxbutyric acid, as well as the routine examination for albumen, casts, total solids and urea.

Renal findings during pregnancy point to two definite pathological states of metabolism, i. e., the non-nephritic, or for want of a better name, the acidosis type. These cases present a lowered alkalinity of the blood with a proportionate increase in the ammonia in the urine, with the coincident finding of abnormal acids in the blood and urine. The normal alkalinity of the blood is expressed in terms of the power of the blood to absorb CO_2. When the ability of the patient's plasma to take to CO_2 is impaired, then acidosis supervenes. Normally 100 parts by volume of plamsa absorb 65 parts or more of the CO_2. When this percentage falls below 50, grave symptoms may be attendant and the lower the percentage falls the greater the danger. The estimation of the CO_2 combining power of the blood plasma is too complicated for routine examination and since in this condition the urine ammonia coefficient shows a very early rise with the presence of acetone and diacetic acid, it suffices to rely upon these tests to tell us of the impending condition. This type of disturbance is easily recognized and appropriate treatment instituted with prompt relief.

Such patients can be carried on to their expected accouchement under rigid supervision with much less dread than the other types.

The other types of this disturbance appear to bear a relation to renal diseases and might be termed, as has been done by Cragin, the kidney type of eclampsia.

I venture to further divide this definite kidney type of eclampsia into two classes with not a little temerity and yet from the therapeutic side such a division is highly advantageous.

These patients with a damaged excretory apparatus present early delayed elimination of chlorides, even before impairment or urea elimination takes place. Given this finding alone even though other urinary findings may be absent, one is in a position to introduce prophylactic measures and keep the patient under more rigid observation for symptoms of decreasing elimination. Such symptoms usually appear.

If we bear in mind in these early cases of kidney derangement that the limitation in the power of the kidneys to excrete chlorides is the key to the whole situation and we fail in bringing the total 24-hour amount excreted up to a satisfactory limit, we have here by far a better criterion that pregnancy should be terminated than we have in the total solid output and the amount of albumin.

The other class of the nephritic type represents those cases in which the kidney has lost its power to excrete the proper volume of water in each succeeding 24 hours.

The relation of chloride retention to water retention is recognized and while these two conditions are usually associated, yet either may occur without the other. This we not infrequently see in the kidney of pregnancy. It is the failure of recognition that this condition exists which is the direct cause of dismal failure and surprise on the part of the medical attendant.

To further waterlog the already overburdened renal system by Murphy-drips, retention enemas, subcutaneous infusions and intravenous injections, only adds insult to injury. To obviate this condition we must from the very beginning take accurate observations on the urinary output and employ vasomotor and direct stimulating diuretics to open properly the portals of exit for the passage of retained water.

The ability of the kidney to eliminate water normally may be tested both by the time required to eliminate a given water intake and by the specific gravity of the urine at the height of this elimination. After ingestion of from 1500 to 2000 mils. of water in from ½ to 1 hour the normal kidney can eliminate 500 mils. in a half hour and the two liters in addition to the ordinary urine output should be entirely eliminated within 24 hours. If the kidney has the power of varying the specific gravity as demands are made for a varying urinary output in relieving the oedema, we are obviously not dealing with a condition presenting a great deal of actual renal disease, but a kidney to be handled throughout as a potential source of danger.

History taking with special reference to toxemia and acidosis of every pregnant woman who presents herself should be routine and only in this manner will we detect in a great many cases the usual prodromata of eclampsia.

If we will bear in mind that there are special types of eclampsia and elicit a history of all obstetric cases with careful observations as to headache, disturbances of vision, as blurring of print or twitching of eyelids, disturbances of hearing, epigastric pain, the onset of abnormal nervous phenomena, vertigo and dizziness, oedema, especially of the face, if we will take the blood pressure (a systolic pressure up to 140 is suspicious) if we will collect a 24-hour specimen of urine for volume, total solids, quantitative chloride, and estimate the ammonia and urea output and examine for albumin, casts, acetone, diacetic and oxybutyric acids, we will be in a good position to tell whether there is anything wrong with the metabolic processes of the body and by correlating this information with that already obtained, toxemia of pregnancy will be in a fair way to be detected in the prodromal state.

HEARING WITH THE EYES.

Emma B. Kessler, Omaha, Neb.

Deafness does not insure the social prestige that attaches to an operation for appendicitis. Consequently the deafened are more reticent about their infirmity than those who enjoy the distinction of having undergone a surgical operation.

"If I were deaf and someone were saying something I wanted to hear, I'd hear it." These words were addressed to a woman who had been listening with every nerve in her body, but failed to understand. If she could not hear, then why did she not read the lips? An otologist once told me that all deafened people picked up lip-reading by themselves. He would have been more accurate if he had said exceptionally few people pick up a working knowledge of lip-reading by themselves, a fact which prompts one to say with the Raggedy Man, "Gee whiz, what a pity that is!"

Many of the rough places in the lives of the deafened can be made smooth if the eyes are trained to aid the ears. While lip-reading is the only help for the totally deaf, it is of extraordinary value to the slightly hard of hearing. In many cases it is serviceable long before one is deaf enough to adjust an earphone to produce a clear tone. When one's deafness has reached the stage where an electrical device can be used, lip-reading makes the use of the instrument much more effective.

While fighting off tuberculosis in a mountain sanitorium a young man became very hard of hearing and secured an acousticon. Four years later he was referred to me and studied lip-reading five months. He says, "If I were to get deaf again under average circumstances I would do just one thing, that is, study lip-reading, for that would cut down to a minimum the depression that accompanies the approach of deafness. Lip-reading has put heart into me again, which I had lost even though I used an earphone, and a good one at that." He advocates the use of an earphone after having mastered lip-reading, as there are things one enjoys hearing which one cannot see, as, for instance, music.

An instance of the practical value of lip-reading for the slightly hard of hearing is found in the youth of 18 kindly referred to me by Dr. J. B. Potts. He tells how lip-reading helped him make an average grade of 91 during his last year in high school. The highest he had ever been able to make before was 87. Whereas he had once feared he could not complete his high school course, he now plans to go to college.

Those who take up lip-reading before they are seriously inconvenienced feel the loss of their hearing less keenly as their deafness progresses. The lip-reader uses his hearing for all it is worth, and lets his eyes fill in the gaps. He often has the sensation of actually hearing all that is said only to find, when he lets his eyes glance from the speaker, that he can no longer understand a word. He has been giving his dull ears credit for what his trained eyes have been doing. Since many of the sounds that are hard to hear are comparatively easy to see, it is obvious that the cooperation of eye and ear is desirable for one with impaired hearing. For example, one might hear: uh ā ă uh ōō. What one would understand would be nothing less than the important announcement: "The baby has a tooth!" Then, as a result of lip-reading one could, and would, undoubtedly go into ecstacies according to Hoyle.

People in general and the hard of hearing in particular are still much in doubt as to the value of lip-reading for any except the congenitally deaf. There are still many who hold to the old fallacy that lip-reading is injurious to the eyes, or that it is a detriment to the hearing that is left. So they have to be educated up to the idea that anyone with a diminished sense of hearing who experiences any difficulty whatever in understanding spoken language, is deaf enough to make good use of lip-reading; also, that the ability to read the lips relieves in large measure the nervous strain of trying to hear, and enables one to use a remnant of hearing to great advantage.

From a purely psychological standpoint the study of lip-reading is worth while. The average adult crawls into his shell and grows apathetic when his hearing becomes defective. The lip-reader, however, is interested in his surroundings. He is not introspective. When he has entered the lip-reading game his whole attitude toward life changes, and many are the little thrills he experiences when he reads bits of conversation the length of the street car or across the cafe. Occasionally, too, he must suppress a smile when his friends, feeling secure in his deafness, make remarks not intended for "home consumption". Some time ago one of my pupils noticed some ladies at the table discussing her and saw one say, "You can see by her hands she's done house work." Soon after beginning his lessons an ex-service man saw his hostess explain to some young ladies, "He's a poor soldier, can't hear anything." They responded, "Too bad, too bad." He surprised his new acquaintances a few moments later by laughing when they warned someone not to drink wood alcohol. Lip-reading also adds greatly to one's enjoyment of the movies. It was amusing recently when the screen showed a Sunday morning service to see the actors singing "At the Cross" while the organ at the theatre pealed forth "When the Roll is Called Up Yonder."

The doctor is the first to realize that there is another aspect to the problem of the deafened than their treatment. When he sees that the physical side of deafness is beyond repair, it is gratifying to note that he ministers to the human side of the disease by pointing out the way whereby his patient can work out his own problem with the help of lip-reading.

SURGICAL PRINCIPLES OF THE MOUTH.*

A. D. Davis, B. S., D. D. S., M. D., Omaha, Neb.

There has been an enormous amount of literature written in the past few years on surgery of the mouth, and oral surgeons have sprung up, as it were, almost over night. The tediousness of dentistry, the increased overhead expense, together with the keen competition has taken its toll of general practitioners and increased the ranks of specialists. As a result, many men, totally unqualified for this important work are in the field, and oral surgeons, as a whole, have been bitterly criticized for some of the results accruing.

A thorough education in both dentistry and medicine together with a complete course of special training, is in my opinion, an essential to success in the field of oral surgery.

Oral surgery is as separate and distinct a field as gynecology, urology, or any other specialty, but a physician who would attempt to practice surgery of the mouth without a dental education, would be committing a crime against humanity, and the dentist who, with no more than a dental education, attempts to practice oral surgery, is almost as bad. Neither one could be fair either to himself or to his patients.

The mouth, unlike a great many operative fields, can by no means known to human science, be rendered aseptic. In spite of this fact, working in a field teeming with bacterial growth of every kind, it is surprising how kind nature is in taking care of wounds, and how few postoperative infections occur, if the tissues are handled humanely.

Nevertheless every precaution should be taken to prevent infections and too much stress cannot be laid upon the importance of asepsis in all surgery of the mouth. The instruments, the operating room and all should be prepared on the same basis as if an abdominal operation were to be performed.

In the selection of the anesthetic, it is needless to say that for all the minor operations and as many of the major operations as can be done successfully, local anesthesia is the anesthetic of choice, and of the various forms of local anesthesia, nerve blocking is by far the best. It offers the advantages of asepsis, duration, cooperation of the patient, absence of postoperative complications, simplicity of technic, and gives a quality of anesthesia equal to any general anesthetic without its dangers.

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*From Department of Oral Surgery, University of Nebraska, College of Medicine. Read before Buchanan County Medical Society—St. Joseph, Mo. Oct. 1920.

In using nerve block anesthesia the injection should be made slowly with the patient in a complete supine position. Most of the surgical scares and accidents during and after the administration of novocain-suprarenin anesthesia, may be traced to the operator who places his patients in the upright position and injects the solution quickly.

The action of suprarenin in the solution causes a rise in the arterial blood pressure, accompanied at first by acceleration, then a slowing and later again by acceleration of the heart rate. The rise in blood pressure is due to constriction of the blood vessels and increased efficiency of the heart. The vessels of the splanchnic area are the ones most affected, although all are involved to a lesser degree, thus producing a transitory anemia of the brain, with its concomitant symptoms of faintness pallor, etc., which may be entirely avoided by the position of the patient.

In preparing the field of operation, where time is not a factor, the ideal should always be reached, if possible.

The teeth should be thoroughly cleaned and polished previously. Immediately preceding the operation, the mouth is sprayed with a bland non-irritating antiseptic solution, getting well into all the folds of the mucous membrane, between the teeth and far back into the throat. The tongue should be cleaned with gauze, the site of injection painted with iodine, and the blocking made.

After making the blocking, insert a piece of sterile gauze over the site of injection, instruct the patient to close the mouth and explain some of the symptoms he may expect from the blocking. This relieves any worry or anxiety the patient may feel when anesthesia begins.

When anesthesia is complete, pack on either side of site of operation with sterile gauze, paint with iodine, and proceed with operation. The gauze prevents saliva getting into the incision and thus prevents infection.

One of the most common operative procedures in the field of oral surgery, is the extraction of teeth. This operation has assumed new aspects since focal infection has gained such importance in the field of medicine, and now involves a new responsibility on the part of the operator which takes it out of the realm of "merely pulling teeth."

In former times extractions depended more on brute strength on the part of the operator and the perseverence and nerve on the part of the patient. In the last few years we have come to realize that the extraction is one of the most important and scientific operations we have in the field of oral surgery. Not because the extraction per se is any more difficult but because most of the teeth extracted now are those which are giving symptoms either local or general. Of these symptoms, from a medical standpoint, those general symptoms, more or less vague in character, referred to remote parts, and usually unaccompanied by any local manifestations, are by far the most important. I refer not only to those teeth which show evidence of bone destruction due to devitalization, with chronic osteomyelitis and granuloma formation, but also to malposed, imbedded and impacted teeth which are often overlooked as etiological factors in various ailments of the human mechanism and are often not discovered until the patient seeks the advice of a neurologist.

The proper recognition of these conditions belongs for the most part to the field of medicine, for the reason that these patients, from a dental standpoint, may be perfectly comfortable and not seeking dentistry, but relief from other symptoms.

These facts should stimulate the medical man to go into his cases more thoroughly and in all suspicious cases, obtain x-rays of the teeth. Most internists now make a routine measure of x-rays of the teeth as a part of their examination and many cases are cleared up this way.

Many physicians and dentists are yet to be convinced of the importance which pathology of the mouth plays in the role of systemic disease. They have become discouraged, when, after tracing a focus of infection to the mouth, and having extractions made, the patient does not improve. Other physicians complain of the systemic reaction experienced by the patient after the mouth has been cleared up of pathology and not a few deaths have been recorded from septicemia following extractions of diseased teeth where the patients' resistance and vitality have been lowered due to existing disease.

These disappointments and doubts are discouraging but yet as a rule, well-founded.

Any one who will study living pathology of the mouth, follow his cases to the operating room and see the conditions as they exist, and have them pointed out to him by a man who knows mouth pathology, will realize the futility of advising his patient to "have his teeth pulled," in an effort to clear up a focus of infection.

Many dentists and oral surgeons feel that by the removal of the diseased teeth and a curettage of the apical spaces they have removed the existing pathology and the patient will recover.

Postoperative x-rays findings show the existence of granuloma and chronic osteomyelitic areas still present in a great many cases even after the removal of the teeth and curettage.

The curette is one of the most dangerous and most abused instruments in the field of oral surgery. Its uses are limited and in the hands of the uneducated and unskilled is a menace to the patient's health and the operator's success.

In order to overcome the failures following simple extractions or extraction plus curettage, an operation has been devised by Dr. Wm. Lete Shearer of Omaha, whereby complete removal of mouth pathology can be obtained.

The operation was designed in 1905 and consists in the removal of the teeth, reflection of the muco-periosteum up to the root ends of the tooth sockets, the removal of the external plate of the alveolar process, and the dissection of diseased tissue. The bone is smoothed, the mucous membrane trimmed and sutured with horsehair. The advantage of this operation is that all the diseased tissue may be "attended to under the eye." The close attachment of these chronic granulomata to the bone and mucoperiosteum makes the choice of the word "dissection," well chosen.

The end results of operations of this type are gratifying to both the operator and the patient for with its use definite knowledge of the complete removal of existing pathology is assured.

In the choice of suture material horsehair is by far the best for these cases. The tissues heal by first intention in practically all cases if properly done, and the sutures may be removed on the fourth or fifth day.

Any surgical procedure regardless of how minor it may seem, should receive the operator's attention in at least twenty-four hours. Alarming symptoms developing after a minor operation are not uncommon and often may be avoided if a rule is made that the patient is to be seen the following day.

It is to be remembered that drainage from mouth infections occurs in two ways, first through the tooth socket or the line of incision, and second, via the lymphatics.

The lymphatics of the jaws are not confined to the mucous membranes but are found in the peridental membrane, the body of the bone, the mandibular canal and even the dental pulp. The lymphatics of the mouth, cheeks and lips are in the form of a rich plexus of lymph capillaries in every connective tissue papilla of the mucosa which pass into the submucosa and thence to the alveolar process over which they pass, forming at the reflection of bone to cheek or bone to tongue a wreath-like network.

In the lower jaw the buccal and labial portions are drained to the submental, submaxillary and superficial cervical nodes. Posteriorly they anastomose with vessels from the sides of the tongue and pharynx and pass chiefly to the upper group of deep cervical nodes.

In the upper jaw those to the outer side drain to the submaxillary nodes following the course of the facial vessels, those to the inner side follow the palatine vessels and drain to the upper nodes of the deep cervical group.

The importance of these vessels in metastatic infections and postoperative drainage cannot be over estimated. This is clearly proven, clinically in many cases where the operator in failing to completely remove the existing pathology leaves behind a focus of infection which can be carried to any part of the body by way of the lymphatics.

The operator's responsibility cannot be too greatly impressed, for by his knowledge and technic is his patient to regain his health or not, and when human lives are in the balance, the man who undertakes surgery of the mouth without a thorough foundation and knowledge of surgical principles is doing himself and humanity an injustice.

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THE NEW YEAR.

The January, 1922, Journal is before you with greetings for a Happy New Year, and brings the sincere hope that the Nebraska State Medical Association and its exponent, the Journal, may during this year accomplish more and better things to the glory of the organized profession.

Your editor is trying hard to make the Nebraska State Medical Journal really worth while, and he needs encouragement and the fullest cooperation of the entire profession to that end. It is your Journal,—the editor is but the directing head—and the Journal will be just as good as you help make it. During the past year the profession has been very considerate and helpful. Whatever the verdict on the work is, we must endeavor to make the Journal better with each succeeding year.

CALL FOR PAPERS.

Anyone wishing to read a paper before the annual meeting of the state association must send his title with his name to the office of the association in Omaha, before March first, 1922. Please get your titles in as early as possible so that the program will not need to be rushed through the press at the last moment.

Papers are requested from any members of the state medical association. Members outside of the metropolitan cities are especially requested to get on the program so that the annual meeting may be fully representative of the profession of the entire state.

The program committee is as follows: Medical Section: Dr. R. W. Fouts, Falls City, chairman; Dr. E. L. Bridges, Omaha, secretary; Surgical Section: Dr. S. R. Hopkins, Hastings, chairman; Dr. C. A. Roeder, Omaha, secretary. —R. B. Adams, Sec-Treas.

QUIEN SABE?

A prominent physician in this state writes to the editor to know "what is the status of a specialist that consults with osteopaths?" Frankly, this is a stunner. The editor has had the experience and does not care to repeat it. The columns of the Journal will be open for frank discussion of the matter.

OUR COLLEGE WOMEN.

The Woman's Faculty Club of the U. of N. college of medicine entertained at the home of Dr. Jennie Callfas in honor of the fifteen women students of the college Nov. 21. The interest in the college of medicine and its activities by the wives of the faculty members is very commendable. It is also a matter of some interest that fifteen young women are striving for medical degrees.

THE NEXT ANNUAL MEETING.

The next annual meeting of the Nebraska State Medical Association will be held in Omaha, April 24-27, 1922. This is going to be the best meeting the association has ever held and will be full of interest to everyone. Let all now lay plans to attend, so that when the time comes nothing will be able to prevent our being present and making a record attendance. —R. B. Adams, Sec-Treas.

NATIONAL HEALTH EXPOSITION.

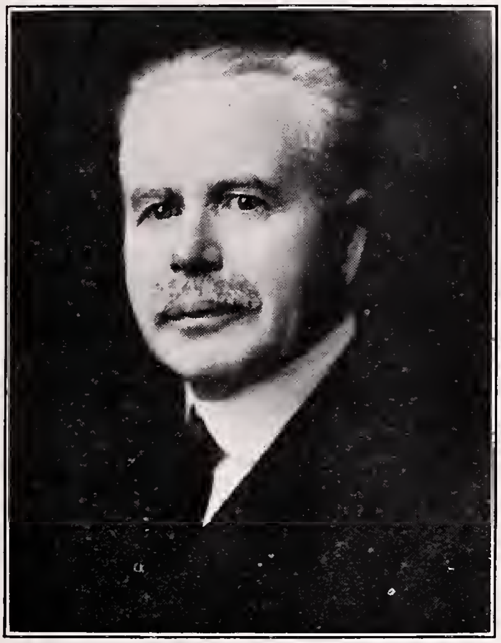
The national Health Exposition will take place at Louisville, Ky., Feb. 1-9. With the slogan, "Without vision the people perish," and following in the trail blazed by the great health expositions held at Chicago, Cincinnati, and New York, this exposition has selected their best features and added to them the results of study by hundreds of observers and practical operators in the field of public health activity.

In round numbers, 8,000 people lost their lives during the past year at railroad crossings.

NINETEEN HUNDRED TWENTY-TWO

A Presidential Inspiration

That the Nebraska State Medical Association has always been of great value to its members is almost a truism. Year by year the scientific and social benefits have been increasing. The writer would like to suggest a few things which might add to its value scientifically and make it still more helpful to its members.



DR. BYRON B. DAVIS, President

Dr. Byron B. Davis, President, Nebraska State Medical Association, for 1922, was born at Fayette, Wisconsin, June 14, 1859, came to Salem, Richardson county, Nebraska, with his parents at the age of ten, graduated from the Nebraska state university, 1882, from the Minnesota college hospital in 1884, was house surgeon one year, engaged in practice in McCook for about nine years, after which he spent 18 months in various European clinics studying surgery, and since the fall of 1894 he has devoted himself to surgery in Omaha. He has been a frequent contributor to surgical literature. He was a regent of the state university from 1887-93.

The man who stays at home and reads the papers and discussions in the "Journal" is only mildly benefited. This can never take the place of being actually present, hearing the papers read, listening to the discussions, and better yet, participating in the debate. The personality of the men taking an active part in the give and take of frank, free and friendly discussions can never be translated into cold type. When men discuss a mooted point and are earnest only in a desire to get at the truth, an inspiration that is very much worth while, comes to all who listen.

I wish it were within my power to convince every physician in Nebraska of the value to him of being a regular attendant at our annual meetings, and of the loss he sustains by staying at home. The few dollars he loses while away from home is nothing, when compared to the dynamic power he gets by contact with his fellow both in private conversation and in the give and take of the open meetings. And once and for all time it should be understood that it does not damage his practice. If the doctor who stays home for fear he will lose practice, could realize it, his more intelligent patrons would value his services more highly if he would take enough interest in his own profession to attend the meetings of his state society.

The value of our meetings could be much increased by a fuller program. There are many men in our ranks who have ideas of great practical value, but have too little confidence in themselves; who meet with cases that ought to be reported, but who permit these instructive cases to benefit no one but themselves. Is it expecting too much to look forward to the 1922 meeting as of more than usual interest, because papers will be presented, not only by those who are usually heard, but by a goodly number of those, who, through too much modesty, or a feeling that their efforts will not be appreciated, have heretofore been listeners?

It is earnestly to be hoped that the program committee will call out from their retreat a lot of men, previously silent, who will be prevailed upon to share their ideas for the common good. Then let the coming 1922 meeting mark an epoch in the Nebraska State Medical Association by bringing out more instructive papers, more snappy interesting discussion, and a larger attendance than any of its predecessors! —B. B. Davis.

AN APPEAL FOR A ONE HUNDRED PER CENT STATE MEDICAL ASSOCIATION.

The editor has requested me to prepare an editorial for the Nebraska State Medical Journal. As a Councillor of the State Association I believe an appeal to the county secretaries to make 1922 a red letter year in the society will be of vastly more import to the organization, than any other kind of an editorial.

The reader will pardon the personal equation that is bound to appear in this appeal.

Today I have sent in the dues of fourteen physicians in Franklin county, as members of the State Association for 1922. This includes the dues of every physician in the county. I am not sure how many county societies can boast of a membership which takes in every physician in the county, but I do know that out of over two thousand eligible practitioners in the state there have seldom been over eleven hundred members of the Association.

This, to my notion, is a very lamentable fact, and surely does not speak very well for our organizing ability. A good deal of the fault lies with the county secretaries. Personally, in the two years I have been secretary of the local county society, I have first written each member urging him to pay his dues, and in case of any one not responding, I have made it a point to see him in person. In this way it has been no trouble at all to make Franklin county a one hundred percent organization. What has been done here can be done in any other county with a little effort.

In the past two years we have held two meetings a year. We have tried to make these meetings interesting to the general practitioner and believe we have succeeded, as evidenced by an attendance of twenty-four at our last county meeting. Five physicians came seventy miles by auto to visit us on this occasion.

With a little extra work on the part of each county secretary during the next month, I am firmly convinced that our society can increase its membership at least twenty-five percent.

Our lack of efficient organization was never more clearly demonstrated than during the session of the last two legislatures, when one hundred and twenty chiropractors and not many more osteopaths succeeded in making a joke of the whole medical practice act of Nebraska.

In passing, I would like to say a word on behalf of the Councillor District societies. If each county secretary will collect the dues of the district society, when collecting the state dues, it will be much easier to make a success of our district societies.

In summing up I would suggest:

(1). Make your county meetings interesting enough to make the members attend. Prepare good programs and see that each member gets a personal invitation to attend each meeting.

(2). Hold meetings frequently enough to keep up the interest.

(3). Inject into each program a paper by one of the state's eminent specialists, who are always glad to assist a county meeting.

(4). Collect the dues at the fall meeting, and see personally all delinquents soon after this meeting.

(5). Urge every county member to join his district society.

A little real action on the part of our county secretaries in the manner outlined above, is the only thing I know of that will eventually make our society one hundred per cent representative of the profession of the state.

—Norman T. Johnston.

THE SHEPPARD-TOWNER ACT: AN ABORTION OR A MISCARRIAGE?

After a somewhat stormy passage and some very material modifications the Sheppard-Towner Bill has become the law of the land. There are some very vulnerable points in the make-up of this law.

If the United States is to take any part in the matter it would seem advisable that it be put into the hands of the United States Public Health Service and allow them to work it out in their own way so far as means would permit. If, on the other hand, the States and municipalities are to manage the affairs of this law it seems advisable that the United States should have no part in it. Just why the Government should make an appropriation to carry on this work in part and depend on the State to complete the work is a little difficult to see, unless it be from the standpoint of the politicians.

Then again, to what extent this should become a lecture bureau is something of a question. What we need are maternities for the care of mothers at any time during the period of their pregnancy, and the care of the infant children so far as they may require that aid during the first few months or first year of their existence. It provides for telling the mothers what to do but does not provide any way for the doing.

In our city life there are women, with several children and the prospects of others, who have to take in washing and do other kinds of work in order to eke out a miserable kind of existence. Possibly the husband is incapacitated to work or out of a job and the whole responsibility of the family, or a large part of it, falls on the mother. Some provision should be made for the home care and good housing of such families. Not for a period of a few weeks or a couple of months but possibly for several months or a year's time. Just how this is to be brought about by the provisions of this law is difficult to see.

The Massachusetts Civic Alliance, Payson W. Lyman, President, refers to this as a bill for "promoting the care of maternity and infancy, but provides for organization, lectures, consultation centers and committee both State and local, and not a penny for the baby or its mother."

He further speaks of this as "This anomalous bill requires that the states establish extension courses of lectures and consultation centers, but forbids the renting or purchase of any building in which to hold them. It employs nurses but not for nursing. Its title pretends that it is for the public protection of infants, but the bill naively provides a method of protecting infants from its ministrations. It is for mothers, but its text overlooks pregnant women and expectant mothers. It is for child-bearing, but provides neither doctor, nurse nor midwife for obstetrics. It is advanced on the claim it will reduce deaths of mothers and infants, but it makes no medical provision and employs no physician."

I am somewhat familiar with the difficulties and the achievements of things as they occur in the city of Omaha, having been on the teaching staff in one of our medical institutions for a period of twenty years. When the department of labor under Julia C. Lathrop, Chief, issued her pamphlet on Prenatal Care, by Mrs. Max West, and later the children's Bureau under Grace Abbott, Chief, issued her pamphlet on Infant Care, I found them invaluable as aids in teaching and put a free copy of these pamphlets into the hands of every medical student, every nurse that I had anything to do with, and all of the prospective mothers, and the hospitals of the city came to my relief in a degree by taking care of every maternity case that was sent to them for a period of two weeks. The hospitals still continue to do that line of work in this city as a part of their charity and doubtless will continue to for some time to come. Along with this was the Visiting Nurse Association that helped out by sending their nurses to give these women and babies daily care in their own homes.

This was imposing the care of these dependent women, mostly married, on the charitable institutions of the city. The unfortunate girls were somewhat more fortunate in a way than the married women, for we had several institutions in the city that would take these girls in for a period of months and care for them without money and without prices if they were in special need. The educational part of this programm was good. The service rendered by the hospitals, visiting nurses, and the homes was good but it did not go far enough. What this city and every large city needs, is a free maternity, well equipped with medical attendants and nurses to take care of these women and babies. What they further need is a provision for the care in their homes, which is rendered in a degree at the present time by the Associated Charities, that shall relieve these mothers and prospective mothers of the cares and anxieties of poverty, no matter what the cause may be, and anything short of this is not doing the best that may be done.

At first thought I would pronounce this bill an abortion, but on considering it further I see a spark of life that may be fanned into flame and, in the years to come, may work up to some plan that will be efficient along these lines, but at the present time I fail to see where this bill fills the need to any great degree.

Free maternities in every city and every county would be a practical way of educating the community as a whole, and by getting hold of those who need help and helping them to the fullest degree in their necessities, and making a center of education, in every community that would radiate and continue to radiate as the years go by. I would consider this of vital importance and as a means of education far superior to any course of lectures that it would be possible to deliver.

—A. B. Somers.

THE SHEPPARD-TOWNER ACT: A HOPEFUL VIEWPOINT.

The Sheppard-Towner bill has passed Congress (Senate, 67 to 3; House, 279 to 39), and been signed by the President.

From the hostile criticism of the medical press one might conclude that its passage was due to "the congressional itch to waste the people's money" and to "the vociferous lobbying of the women." An annual appropriation of $1,240,000, out of a total government expenditure of $400,000,000,000 this year, only a part of this appropriation to be used in the effort to prevent some of the 20,000 deaths annually of mothers in giving life can hardly be called "waste"; especially when we remember that nine-tenths of the total government expenditure will be for past, present and future war—the killing of men. Any one having any knowledge of politics knows that the vote on this measure was in part an anti-suicide vote by congressmen too wise to deny the wishes, expressed through their organizations, of 10,000,000 voters.

The few changes in the bill since it passed the Senate do not subvert its original purpose to reduce maternal and infant morbidity and mortality nor its original method of administration by the Children's Bureau.

It has been interesting to note the meticulous care with which the original appropriation was cut, various boards and committees eliminated, and a five-year period of probation established. It were well if the same care, with greater discrimination, were exercised more often by Congress.

Striking out the provision as to how the money shall be expended by the states is a wise change, and was evidently a compromise with those who opposed the bill on the ground of paternalism. In view of its prohibiting the expenditure of any part of the appropriation for maternal pensions, it will be interesting to watch the progress through Congress of the soldier bonus bill.

The revolutionary fact about this act is that, at last, in the march of events, an act for the amelioration of maternity and infancy is to be administered by persons not only highly trained in medicine and social service, but possessing the inherited instincts of age-long motherhood and child-care; and that, wonder of wonders, these women are to have funds with which to carry on similar work to that which they have from time immorial done gratuitously.

Unquestionably we shall get results out of proportion to the smallness of the fund. There is abundant, distinguished, and unimpeachable testimony to the fact that women, when steadied by financial respononsibility, are careful spenders and make a little go a long way.

As I emphasized in a previous editorial this act is not curative, but remedial. It does not attack the fundamental social and industrial evils out of which come maternal and infant morbidity and mortality.

However, as we are sick, we must temporarily have a nurse. The important matter is in future to keep well.

Meantime, "the world do move."

—Inez C. Philbrick.

OUR NEW ADVERTISERS.

Following is the list of new advertisers in this issue of the Journal: Scott & Bowne, Washington University, Physicians Casualty Association and the Omaha Medical Laboratory. Whenever possible we trust that our members will patronize the advertisers who help to support this Journal. Look over the advertising pages, write for samples where offered, and always say where you saw the ad.

For a permanent hospital for mental and nervous diseases for former soldiers at Palo Alto, Calif., $1,400,000 has just been made available. A temporary hospital with capacity of 550 beds is now operating on this site.

THE SOCIETIES.

The first group meeting of the **Fellows of the American College of Surgeons of Nebraska, Iowa and South Dakota** will be held at Lincoln on February 6 and 7, 1922.

A representative of the college was at Lincoln recently and the following committee of arrangements was appointed: Dr. A. R. Mitchell, chairman, Dr. J. S. Welsh, secretary, and Dr. F. A. Long, counsellor.

A program of unusual excellence is being prepared and the local committe is sparing no effort to make this meeting a success. Detailed programs will soon be obtainable. Early reservations at the Lincoln hotel should be made. It is understood that Dr. G. W. Crile, Cleveland; Dr. C. Jeff. Miller, New Orleans; Dr. Allen B. Kanavel, Chicago and Dr. Malcomb MacEachron, Vancouver, and other men of national repute will be at the meeting.

The **Pawnee County Medical Society** at a meeting held at the Pawnee hospital Nov. 15. elected Dr. L. D. Harmon, Table Rock, president; Dr. H. D. Flory, Pawnee, secretary and Dr. H. M. Harvey. Burchard, delegate. Drs. J. C. Waddell, and W. A. Rush, Beatrice read papers on, "The Goitre Question."

The **Madison County Medical Society**, at a meeting held at Norfolk, Dec. 7, elected the following officers: Dr. W. R. Peters, Stanton, president; Dr. A. E. Gadbois, Norfolk, secretary-treasurer, and Dr. E. L. Brush, Norfolk, delegate. The subject of discussion was cancer.

The **Nu Sigma Phi**, a medical women sorority, gave an annual dinner and initiation at the Fontanelle, Omaha, Nov. 26.

The **Holt County Medical Society** elected Dr. N. P. McKee, Atkinson, president; Dr. J. P. Gilligan, O'Neill, secretary-treasurer, and Dr. F. L. Wilson, Stuart, delegate. The meeting was held Oct. 4, in connection with the **Eighth Councilor District Meetinf**, the report of which by mischance failed to reach the editor. The meeting was a well attended and very interesting.

The election of officers of the **Douglas County Medical Society**, Dec. 13, resulted in the election of Dr. Palmer Findley, president; Dr. J. M. Patton, vice president and Dr. Roy A. Dodge, secretary-treasurer, Dr. Frank Billings, Chicago, was the honor guest. He made a plea for greater care in diagnosis by the family doctor.

The **Otoe County Medical Society** was held at Nebraska City, Dec. 13. Dr. Newell Jones, Omaha, spoke on diseases of children, Dr. J. S. Welsh, Lincoln, on diseases of the kidneys, and Dr. F. H. Dietrich, Omaha, on constructive bone surgery. For the ensuing year Dr. C. W. Parks, Syracuse, was elected president; Dr. S. S. Wilson, Nebraska City, secretary-treasurer and Dr. A. P. Ginn, Nebraska City, delegate.

At the annual meeting of the **Dixon-Cedar-Thurston-Wayne and Dakota Counties Medical Society** the following officers were elected: President, Dr. John Buis, Pender; secretary-treasurer, Dr. F. G. Dewey, Coleridge.

At a meeting of the **Pierce County Medical Society**, at Pierce, Dec. 6, the following officers were elected: President, Dr. C. E. Rodgers, Osmond; secretary-treasurer, L. A. Johnson, Plainview; delegate, Dr. Frank G. Salter, Pierce.

The **Keith County Medical Society** organized Dec. 5, by electing Dr. C. E. Vandiver, Ogallala, president; Dr. C. C. Wallingford, Ogallala, secretary-treasurer. A banquet in honor of Dr. I. H. Dillon, chief, bureau of health, was given Dec. 9, by this society.

The **Fifth Councilor District Medical Society** held an unusually interesting meeting at the invitation of the Burt county medical society in Tekamah on Dec. 12. The attendance was large and a goodly number of the doctors were accompanied by their wives.

The papers were brilliant and practical as evidenced by the intense interest manifested in the discussions. A splendid dinner was served at 6 o'clock by the Auxiliary to the American Legion.

Following is the program: Dr. Louis Moon, Omaha, "Anal Fissure and its Treatment"; Dr. Robert Schrock, Omaha, "Pain in the Back"; Dr. A. G. Lueschen, Columbus, "The Schick Test and Diphtheria"; Dr. F. B. Cyphers, Duncan, "Impacted Fractures of the Neck of the Femur"; Dr. C. A. Roeder, Omaha, "Practical Considerations of Abdominal Emergencies"; Dr. Warren Thompson, Omaha, "Intravenous Injections of Glucose"; Dr. Edwin Davis, Omaha, "Blood in the Urine."

On Dec. 3, 1921 **The Lancaster County Medical Society** had as its guest of honor Dr. A. H. Andrews of Chicago. Dr. Andrews gave a splendid lecture on, "The Fifth Nerve." He described the anatomy, physiology and the clinical significance of this nerve, laying especial emphasis on the recurrent branches from each one of the three main divisions, and showed clearly the different reflexes that can arise from the nerve along the course of these recurrent branches.

After finishing this talk Dr. Andrews said that "A man who works hard has a right to play," and then told of his hobby "The Cliff Dwellers." For seventeen summer he has been going to Colorado and New Mexico studying the ruins of buildings left by these people long before Columbus discovered America, who left no trace as yet discovered, to tell us who they were.

Dr. F. A. Long, editor of The Nebraska State Medical Journal was also a guest of the society. He spoke of his plans for the future of the Journal.

The Lancaster county dental society and several doctors from neighboring towns attended the meeting.

Report on Activities of National Cancer Week for the State of Nebraska.

Summary Report.

A. Number of Lectures delivered	197
1. Total number of persons reached by lectures	33,605
B. Amount of literature distributed (number of pieces)	44,800
1. Number of post cards disposed of	6,000
C. Number of news articles and editorials printed	5,408
1. Number of Moving Picture Theatres in which slides were shown	89

Detailed Report.

	Number	Attendance
A. Lectures before:		
Professional and scientific bodies	15	565
Public audiences under auspices of Medical Societies	182	33,040
Meetings for college students	1	200
Meetings for nursing organizations	1	100
Meetings for nurses in training	7	440
Meetings for Chambers of Commerce and Boards of Trade	1	75
Meetings for Ministerial and other groups	1	30
Meetings for Church Clubs (men and women)	19	3,675
Meetings for Rotary, Kiwanis and Lions Clubs	3	200
Meetings for Fraternal Orders and Lodges	1	500
Meetings for Y. M., Y. W. C. A. and Y. W. H. A.	2	140
Meetings for Tri-City Dental Society	1	100
Meetings for Teachers — Public Schools of Omaha	1	125

C. Publicity:

1. Number of news articles	5,394
Number of editorials	12
Number of articles in Medical Journals —Cancer Number in Neb. State Med. Journal.	

nals	2
2. Number of slides prepared for moving pictures theatres	89
Number of theatres in which they were shown	76
Number of times shown in each theatre	Week before Cancer Week
Approximate number of persons reached	2,500

The American Society for the Control of Cancer.

Omaha, Nebraska,
November 23, 1921.

Assets	
45 Nebraska doctors contributed for Cancer Week	$450.00
Liabilities	
10,000 circulars	$ 33.15
181 lantern slides	50.95
3 rubber stamps	3.25
2,000 letterheads	12.50
Sept.—Stenographer's salary	35.00
100 list of speakers	2.15
Oct.—stenographer's salary	100.00
310 lantern slides	63.60
30,000 Vital Facts About Cancer	35,88
1,500 circulars	42.75
200 cards multigraphed	.92
Postage, express	35.85
Nov.—stenographer's salary	20.00
200 lecture outline	3.50
	$450.00

Executive Committee: Palmer Findley, Chairman; Byron B. Davis, Albert F. Tyler, Victor B. Smith, A. P. Overgaard, secretary.

HOSPITAL NOTES.

By the will of the late R. E. Moore of Lincoln, who died last month, the sum of $100,000 is bequeathed for a hospital in Lincoln.

A new wing added to St. Elizabeth hospital, Lincoln, was dedicated Dec. 15. By this addition fifty beds are added to the hospital, besides a nurses dormitory, a dining room and class room for nurses and a modern obstetric department and a nursery.

For Sale—Almost new Edwards Portable X-Ray coil with D'Arsonval current and appliances. Diatherma and High Frequency currents. Betz body hot air cabinet. B. & L. microscope with three powers. Will sell separately cheap, as do not need them. Address Dr. A. T. Hunt, 530 World-Herald Building,

NOTES ABOUT THE DOCTOR.

Dr. A. I. MacKinnon, Lincoln, has been seriously ill lately.

Dr. E. J. Porter, formerly of Denver, has located at Sumner.

Dr. George O. Dunseth, of Miller is about to locate in Kearney.

Dr. M. E. Bush, Sumner, is reported to have retired from active practice.

Dr. Charles Zimmerer, for a time located at Dubois, has returned to Nebraska City to practice.

Dr. W. H. Steele, Hastings, who recently suffered a severe injury of the skull by a fall, has recovered.

Dr. E. D. McGill, Blue Hill, has disposed of his interests there and has gone to New York to take up OALR.

Dr. Charles E. Legg,formerly of Waterbury, has located in South Sioux City succeeding the late Dr. McArthur.

Dr. Chas. P. Charlton, Palmyra, suffered an attack of pneumonia in December and was moved to a Lincoln hospital.

Dr. Paul R. Howard, formerly of North Bend, has become associated with Dr. A. E. Gadbois, Norfolk, in the practice of OALAR.

Dr. Olga Statsny of Omaha, who has been in Czecho-Slovakia in Y. M. C. A. work, for the last three years has returned.

Dr. Clyde Roeder, Omaha, made a holiday trip to Los Angeles to visit his father, Dr. George Roeder, formerly of Grand Island.

Dr. W. T. Neal, Peru, who submitted to an operation on his eyes in Omaha, has about recovered and expects to resume practice.

Dr. S. H. O'Neill, formerly of North Loup, has located at Blue Hill and has acquired control of a small hosipital at the latter place.

Dr. C. A. Johnson, of Detroit, Mich., has located at Long Pine and will reopen the hospital at the latter place. Dr. Johnson is a native Nebraskan and a graduate of the Nebraska university.

Dr. Homer Davis, Genoa; Dr. W. J. Douglas, Atkinson and Dr. F. A. Lemar, Humphrey attended the review of the Officers Reserve of the 7th Army Corps, which was held at Ft. Crook in December.

Dr. H. Gifford and wife, accompanied by a small party of medical men and their wives, sailed for British Guiana where the scientists of the party will continue research work on eyes, begun on a similar trip last year.

Dr. R. B. Sweaney, formerly of Chicago, has become associated with Dr. M. B. Freeman, Neligh, in the general practice of medicine and surgery. Dr. Freeman has recently acquired the hospital formerly conducted by Dr. M. F. Hall, and has opened it as a general hospital dedicated to the profession.

The following doctors attended the 7th annual meeting of the Radiological Society in Chicago, Dec. 7-10: Drs. L. W. Rork, Oxford; R. C. Woodruff, Grand Island; R. W. Fouts, Falls City; R. S. Mitchell, Red Cloud; Drs. E. W. Rowe, R. L. Smith and R. Buchanan of Lincoln; Drs. A. F. Tyler, W. L. Ross, Sr., C. H. Ballard, T. T. Harris and A. P. Overgaard of Omaha.

Omaha, Neb.

NECROLOGICAL.

Dr. Charles Rosewater, Omaha, died after a prolonged illness Nov. 24. Dr. Rosewater was born in Cleveland, Ohio, 1859, and was educated in Cleveland and in Austria and Germany obtaining his medical degree in Germany. He practiced medicine in Omaha since 1886. For a number of years he was professor of obstetrics in Creighton university college of medicine. He was an active member of the Nebraska state medical association. He left a bequest of $20,000 to Smith college in memory of a deceased daughter. He was a brother of the late Edward Rosewater, founder of the Omaha Bee.

Dr. Leslie Earl Vandiver, a recent graduate of Creighton college of medicine, died early in December, after a short illness, at the hospital of his father, Dr. C. E. Vandiver, Ogallala.

Dr. Lorenzo Rounds, Mayberry, a graduate of the Northwestern Medical college, St. Joseph, Mo., '81, died Dec. 7, aged about 76. He had been an early day practitioner at Tecumseh.

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A STUDY OF SOME OF THE PHYSICAL SIGNS OF TUBERCULOSIS.*

Miles J. Breuer, A. M., M. D., and Roland G. Breuer, B. A., M. D., Lincoln, Neb.

We may state at the outset two points on which we wish to lay emphasis. That one who depends on the common signs of tuberculosis for a diagnosis, cough, rales, wasting, and bacilli in the sputum, is going to miss a good many cases; and that pulmonary tuberculosis is much more widely distributed than is commonly supposed. We might add that if we are to expect any success in the campaign against the great white plague, much of it must come from a recognition of the disease in a stage where it is possible to do some good by treating the patient and protecting others.

Autopsy records show that from 90 to 95 percent of persons are, or have been at some time, affected with a tuberculous lesion in the lungs. In several large series of tuberculin tests, 75 to 90 percent of persons have been found positive. Mortality records give us the figure of one death out of ten being due to tuberculosis. Therefore, theoretically, out of every ten persons coming into your office, nine have tuberculosis, and one will die from tuberculosis. Practically, out of these ten, somewhere between one and nine should be diagnosed as tuberculosis. We find, however, that when a differential diagnosis is under consideration, tuberculosis is about the last thing thought of, rather than the first.

The reactions of different individuals to the tubercle bacillus must be kept in mind. All of us harbor tubercle bacilli in our bodies at some time or other. Only a limited number become infected. Actual infection, that is, local establishment of the tubercle bacillus with the production of tissue reaction, is not incompatible with perfect health on the part of the person infected. An infection may exist without producing any definite symptoms of illness, and yet be sufficient to keep the individual constantly below par, anemic, underweight, subject to early fatigue, contant "colds," and handicapped in making a living. Between this condition, and the advanced stage of the disease which can be diagnosed by the passerby in the street, there are many gradations.

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*Read before the Nebraska State Medical Association, Lincoln, Neb., May 10, 1921.

The reflex diagnostic signs discussed in this paper, are not in general use, but they are not new. They are so well established in the literature that they appear in the later textbooks. They were extensively utilized by the army tubercular boards.

		Toxic								Reflex													Local									"Specific"					
Number	Initials	Weakness	Early fatigue	Malaise	Poor appetite	Loss of weight	Night sweats	Tachycardia	Neurasthenic symptoms	Hoarseness	Reflex cough	Gastro-intestinal symptoms	Constipation or diarrhea	Pain in the chest	Deficient expansion	Lagging	Muscle tension	Atrophy	Hilus dimple	Spinal deformity	Flattening	Change in skin sense	Hemoptysis	Productive cough	Pleurisy	Vocal fremitus	Diminished resonance	Bronchial breathing	Moisture	Granular rales	Unilateral narrowing of Kroenig's isthmus	X-ray		No sputum	~~The~~ Tubercle bacilli in sputum	Family history	Progress in 3 months
																																Active	Chronic				
1.	F.S.	+	+	+	+	+	+			+	+	+	+	+	+		+	+		+				+		+	+	+	+		+	+	+				Arrested
2.	M.D.S.	+	+	+	+					+	+	+	+	+			+	+	+					+		+	+	+		+					—		Lost
3.	M.K.		+	+	+					+	+		+		+	+	+	+		+	+	+		+					+		+						Arrested
4.	E.R.	+	+	+						+	+	+	+		+		+	+	+		+	+		+		+	+	+	+	+			+		—		Lost
5.	E.Z.	+	+			+	+	+		+					+		+	+		+						+	+	+	+	+	+			0	—		Worse
6.	R.H.W.	+	+	+	+	+	+			+		+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+	+		+		+		Worse
7.	L.H.	+	+	+	+		+	+	+			+	+	+	+	+	+	+			+	+	+			+	+		+			+		0		+	Improved
8.	I.W.	+	+	+	+	+		+	+		+	+	+		+	+		+	+			+		+		+	+	+	+			+				+	No change
9.	A.T.A.	+	+	+	+	+	+			+	+	+	+		+	+		+			+	+	+	+		+		+	+		+	+			—		No report
10.	F.N.	+	+	+							+			+	+	+	+	+							+		+		+	+				0			Improved
11.	W.W.	+	+	+	+	+	+	+		+	+	+		+	+			+							+	+	+				+	+		0		+	Improved
12.	M.G	+	+	+	+		+			+	+			+	+	+		+	+					+		+	+	+							—	+	Worse
13.	G.H.	+	+	+	+				+	+	+	+	+		+	+	+	+	+	+	+	+		+		+	+		+	+	+				—		No change
14.	H.E.H.	+	+		+	+	+	+	+	+		+	+		+			+					+				+	+	+				+	0			Worse
15.	C.E.	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+				+				+	+			+	+	+		0		+	Improved
16.	A.K.			+	+		+	+		+	+	+	+	+	+	+	+	+		+		+	+	+		+	+	+	+	+		+	+	0			Improved
17.	F.H.				+						+	+			+		+	+	+		+					+	+	+	+	+	+		+	0			Improved

Following and elaborating Pottenger's suggestion, we have divided the diagnostic findings of tuberculosis into the toxic, reflex, local and specific groups.

The toxic signs are due to the infectious toxemia, and are found in various other infections as well as tuberculosis. They are not pathognomonic of tuberculosis, but are a measure of the activity of the process. They include:

Temperature.
Malaise and early fatigue.
Tachycardia.
Night sweats.
Loss of weight.
Anemia.
Nervous instability.

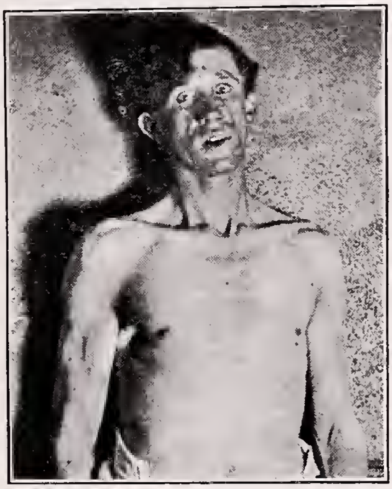
The reflex signs are the peripheral expression of visceral disease. The inflammation of an organ results in a constant bombardment by severe impulses along the visceral nerve, of the cell bodies in the spinal or cerebral segment; as a consequence, the efferent impulses from that segment are abnormal, and result in various motor and sensory expressions. The reflex signs of tuberculosis include:

Hoarseness (not due to local laryngeal tuberculosis).
Frequent colds.
Gastrointestinal symptoms.
Unproductive cough.
Pain in the thorax.
Vasomotor disturbances.
Shoulder drop.
Hilus dimple.
Deficient expansion.
Spinal deformity, not due to caries.
Muscle tension.
Muscle atrophy.
Skin atrophy.
Sensory changes.

The local signs indicate the presence of an infiltrative or destructive process in the lung. They consist of

Hemoptysis.
Pleurisy.
Productive cough.
Pleuritic pain.
Frequent colds.
Changes in tactile fremitus.
Changes in percussion resonance.
Changes in breath sounds.

The reflex and local signs indicate the presence of disease in the lungs, especially the apices, but do not prove it to be tuberculosis. In the absence of tubercle bacilli in the sputum, the diagnosis of tuberculosis is made on the following circumstantial evidence: (1) the frequency of tuberculosis and the rarity of other lesions in the upper lung; (2) the elimination of other possibilities. The following is a brief differential consideration of the latter:



1. F. S. Tuberculous facies; tilting of head to the right; increased tension of neck muscles on left side; right sterno-mastoid increased in size. Clavicles prominent and horizontal.
X-ray report: Diffuse process on both sides from apices to bases; active and inactive areas.

Chronic Bronchitis: Lacks the local and reflex signs of a visceral disease process; general symptoms less severe; symmetrical; the acid-fast bacillus sometimes found, lacks the granulation of the tubercle bacillus, and is not pathogenic to animals. Cough and rales are not sufficient for a diagnosis of tuberculosis.

Influenzal Broncho-Pneumonia: The onset of an acute tuberculosis is frequently called influenza; the fact that it clears up in two or three months under proper care does not exclude tuberculosis.

Bronchiectasis: Long history of cough and expectoration: absence of general symptoms; localization of signs in the lower chest; absence of tubercle bacilli in the frankly purulent sputum.

Chronic Nontuberculous Lung Infection: This condition seems to exist only in discussions of differential diagnosis. I am unable to find anything in the literature concerning its pathology or accurate diagnosis. The term is always used loosely and inaccurately, and in most cases the condition is probably tuberculosis.

Fibrosis of the Lung due to inhalation of dust by miners, stonecutters, potters, etc. The history and general symptoms aid in the diagnosis. However, the diagnosis is frequently difficult, and tuberculosis frequently coexists.

Pulmonary Abscess: History of pneumonia, nose and throat operation, ether pneumonia, etc. Localization low in the lung, or in the hilus.

Fungous Infections: Actinomycosis, streptothricosis, leptothriçosis, and other fungus infections; finding of the fungus in the sputum.

Asthma and Emphysema: Tuberculosis frequently coexists. The X ray is of particular assistance in the diagnosis of these cases.

Tumors of the Lung: Sarcoma, carcinoma, hypernephroma, endothelioma, and dermoid cyst of the pleura. The X ray is of assistance.

Syphilis: Rarely seen. Positive Wassermann reaction does not prove a lung condition syphilitic, as tuberculosis frequently coexists.

Gassing: History: associated with psychoneurosis; and X ray. Tuberculosis is frequently secondary.

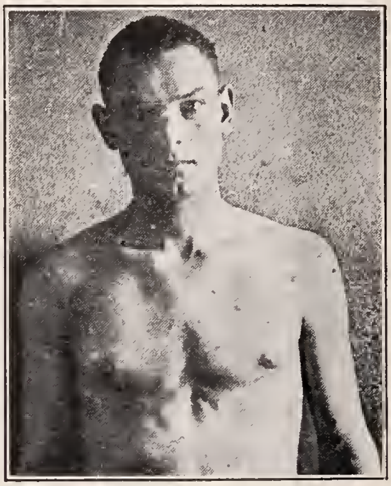
Goiter: The enlarged sterno-mastoids in tuberculosis are frequently mistaken for a goiter. The presence of a goiter or the local effects of a thyroidectomy cause confusing changes in the physical signs about the neck and shoulder. The general symptoms of exophthalmic goiter resemble those of tuberculosis. The two conditions rarely coexist.

The so-called specific findings are not of as much importance in making a diagnosis of tuberculosis as it may seem. The absence of tubercle bacilli in the sputum means nothing, even though it persists for a long time. Especially in the early stages of a lesion, when the diagnosis is most important, there are no bacilli in the sputum.

The presence of acid-fast bacilli in the sputum must be interpreted with care. Acid-fast bacilli are found in the mouth, throat, bronchial secretions, and tap water; these are saprophytic, and not pathogenic to laboratory animals. Tubercle bacilli are at times found in the mouths and throats of healthy persons. The triumphant finding of a single bacillus after an all night search of a slide, is not as important as the excitement of the chase might lead us to feel.

X ray evidence, likewise, is not absolute. Its value depends quite extensively on the skill and experience of the man who interprets the plate. Very early lesions escape the X ray; a careful history and examination may make a diagnosis before the X ray shows any lesion; we have two such cases in our series, which later developed X ray findings. On the other hand, the X ray frequently picks out a lesion, totally unsuspected upon physical examination. X ray examination may fail to differentiate tuberculosis from dust-fibrosis, syphilis, fungus infection, or tumor. It is valuable corroborative evidence, and should be performed as often as possible; but the practice of basing a diagnosis solely on the X ray cannot be too strongly condemned.

It will be seen from the above that there is no sure and easy way to make a diagnosis.



2. E. R. Tuberculous facies to slight degree; prominent clavicles, right more prominent than left. Right clavicle horizontal. Prominent bilateral hilus dimple.

X-ray report: Increase in density in both apices; a number of calcified areas in left hilus marked fibrosis of left vertebral branches of the bronchus.

There is no single characteristic finding that will make the diagnosis in every case. Each case requires careful and detailed study; and there are no two cases alike.

We have selected a number of photographs illustrating the reflex signs. They will bear out the statement so frequently heard of late, that inspection is our most important means of diagnosing tuberculosis. We will not go further into the mechanism of their production than we did in the paragraph in which they are enumerated, but will refer for that purpose to Pottenger's monograph, **The Symptoms of Visceral Disease,** Mosby, in which this is very completely discussed.

We realize that our chief responsibility in each of the following cases, is to establish the diagnosis of tuberculosis. All that we can do, is to show our method of doing this, on two cases used for examples; for the data required are too detailed and extensive to permit of including seventeen such cases in a paper of this length. No case was considered tuberculosis unless a representative number of findings from each of the toxic, reflex, and local groups, was present. The appended table is an abstract of the findings in these cases. The following list of possible sources of error in interpreting these signs, must be considered:

Occupational asymmetry.
Local inflammation (infected glands, etc.)
Trauma.
Rickets.
Respiratory difficulty from childhood, due to adenoids.
Cervical rib.
Tumor, especially lipoma.
Congenital irregularity.
Goiter and thyroidectomy.

Case 5.—E. Z. Age 29; male; white; farmer.

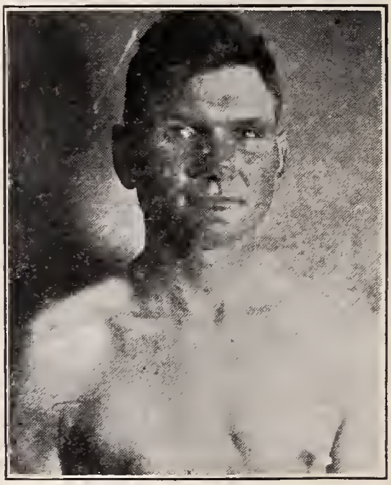
Family history negative. Had "rheumatism" in back and legs, six years ago. Slight influenza a year ago. Mumps at age of 20.

Complaint: Gastrointestinal disturbances (gas colic for the main part) in attacks of irregular duration and intervals, for past three years.

History of present disease: Frequent attacks of hoarseness; appetite good as a rule; abdominal symptoms unaffected by diet; bowels normal.

Sleep poor; is restless, nervous, irritable.

Has lost 20 pounds since onset. Temperature, morning between 97 and 98; evening, between 100 and 101.



3. E. Z. Flattened right chest; prominent clavicle and sterno-mastoid on right side; concave shoulder-crest on right, due to flabbiness of trapezius. Right supraclavicular fossa larger than left

X-ray report: No fibrosis; increased density in right apex and upper right lung; calcified areas in both hilus regions. Numerous millet-seed tubercles in both apices.

Malaise, early fatigue; lack of vitality. Pulse rate 80 to 90.

Dyspnoea on exertion.

Examination: Weight 160; looks well nourished.

Clubbed fingers; protuberant abdomen; rounded shoulders.

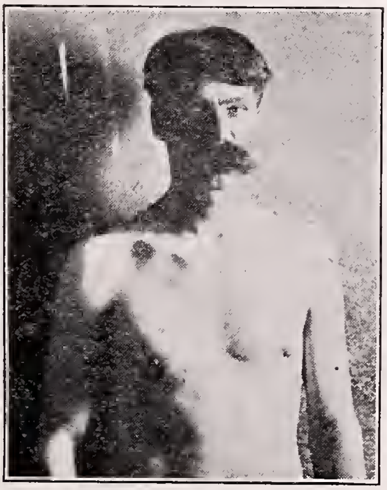
Right clavicle more prominent than left; slopes downward slightly. Right chest flattened, and right shoulder crest concave. Deficient and delayed expansion of right apex.

Atonic and atrophic condition of muscles in dorsal region, causing spine to show prominently, apparent kyphosis.

Right sternomastoid muscle more prominent and more rigid than left.

Kronig's isthmuses, right 4 cm.; left 5 cm.

Diminished resonance on both sides, 2 cm. below clavicles anteriorly, and above scapulae posteriorly. Area of markedly diminished resonance to about 5 cm. below clavicle on right side. In this same area, there is increased tactile fremitus, vocal and whispered resonance.



4. R. H. W. Tuberculous facies; concave shoulder-crests; right clavicle horizontal; prominent clavicles. more so on right side; dished right chest, due to atrophy of pectoralis major.

X-ray report: Pipe stem bronchus; network in right apex, and left side below second rib; hilus fibrosis; area of increased density on left side between 5th and 8th ribs posteriorly.

Abdomen very prominent; lower border of bony thorax flared out.

Granular and moist rales on both sides just below and above clavicles; prolonged expiration in same area.

Blood pressure 60-100.

Red cells, 4,000,000; white cells, 6,000.

Urine, 1020; otherwise negative.

X ray shows increased density in both upper lobes, more marked in the right; calcified areas in both hilus regions; numerous millet seed sized areas in both apices.

This patient was put on tuberculosis management; and although he got into the spirit of it very poorly, he gained 15 pounds in two months. However, when farm work began in the spring, he worked hard, and at the same time, his wife became ill; and since then he has been growing worse.

Case 7.—L. H. Age 23; female; white; housewife.

Family history: Mother died of tuberculosis 5 years ago.

Past history: measles and whooping cough in childhood; cerebrospinal meningitis 3 years ago.

Complaint: Referred by Red Cross, as a contact case.

History: Frequent and constant "colds".

"Indigestion"; distention after eating.

Increasing pallor.

Pulse, 90 to 110.

Temperature, 97.6 in morning to 100 in evening.

Loss of weight: 29 pounds less than she weighed 8 years ago. Nineteen pounds lost in last six months.

Early fatigue; afternoon malaise, lack of vitality.

Pain in upper chest.

Dyspnea on exertion.

Nervous instability.

Examination: Poorly nourished, though not actually emaciated. Finger nails narrow, longitudinally curved, bluish.

Both clavicles prominent.

Increased tension of all neck muscles; much more prominent on right side, so that right supraclavicular region seems decreased in size compared with the left.

Both apices expand poorly; left apex lags.

Increased skin sensitiveness on left side.

Chest flattened on both sides.

Impaired resonance on both sides, greatest below right clavicle and above left clavicle.

Vocal fremitus, and percussion resonance increased on right side below clavicle.

Prolonged expiration and moist rales in right apex.

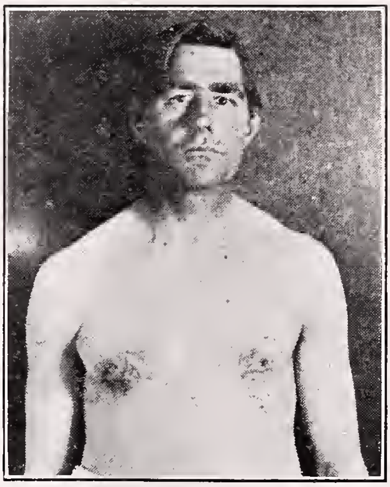
Kronig's isthmuses 4 cm. and equal.

Blood pressure 75-95.

Red cells 4 000 000; white cells, 6,500.

Urine, 1014; otherwise negative.

X ray showed increased density in right apex; calcification and fibrosis of bronchi in both upper lobes; areas of calcification in the lung proper.



5. G. H. Head tilted to the left; prominent right sterno-mastoid; right supraclavicular fossa; both chests flattened due to atrophy of pectoralis major muscles; right clavicle sloping downwards; Tuberculous facies; increased tension of sterno-mastoid and scalenus visible unilaterally (right) in the tension of tendons of lower attachments.

X-ray report: Heavy hilus fibrosis and calcification; numerous calcified areas; heavy fibrosis in lower lobes; increased density in upper lobes, with pipe-stem calcification characteristic of generalized Tb.

This patient cooperated very intelligently in her treatment; her symptoms abated very rapidly; but her gain in weight has been very slow.

DISCUSSION.

Dr. T. C. Moyer, Lincoln: The doctors have presented a very interesting and important subject.

This death rate from tuberculosis is due chiefly to two causes: First, the failure of the people to seek medical advice until the disease has passed the curable stage; and second, the failure of physicians to discover its presence by the early signs.

The remedy is two-fold: The public must consult physicians for the relief of minor symptoms, and it is also necessary that every physician to whom the public comes for advice shall exercise diligence and thoroughness in his examination.

It is a good plan to search for tuberculosis in any case presenting toxic or local signs, as presented by Dr. Breuer. Any evidence is of value.

In order to recognize pathology in the chest, it is important to know the normal chest. There are no two chests alike. You must establish the normal of the chest you are examining, taking into consideration the anatomical structure, muscularity, obesity, etc.

An erroneous diagnosis of tuberculosis is often made because of misinterpretation of normal signs, because minor differences of the two sides are often exaggerated, and signs of healed lesions are taken as incipient ones. It is not of importance to the patient to know whether he has had tuberculosis, but to know whether he has it now. The thing is the rales which determine the presence of active tuberculosis. They are persistent, localized, and come coincident with cough.

Pathology in the apex of the lungs should be regarded as tuberculosis until proved otherwise; in the base of the lungs it should be regarded as not tuberculosis until proved otherwise. We must pay more attention to inspection, for it is here the earliest signs are manifested. Colonel Bushnell says one of the earliest signs is lagging.

I think X rays should be used to confirm physical findings in every case possible, and the sputum should be examined.

An erroneous positive diagnosis may prove a hardship, but an erroneous negative diagnosis may prove fatal.

Dr. Heagey: The subject for discussion is one that has interested me for three years, particularly the diagnosis of pulmonary tuberculosis. In the Creighton tuberculosis dispensary where we are handling a considerable number of cases from week to week, I have made it a point to spend practically all my time with the medical student from the standpoint of diagnosis. Once having established the diagnosis, any visiting nurse will tell them how to handle their patients intelligently.

I feel that a word in regard to the tuberculin test is not out of place. A great deal of emphasis has been placed on this. There is no doubt it is positive in a very high percentage of our cases, whether they have tuberculosis or not. Of this group, it merely indicates the presence of tuberculosis at some time in the individual. So decided a place does the tuberculin reaction take in the presence of old tuberculosis, that several of the larger institutions and especially the Indian reservations, have adopted the following plan: No children are sent away to school until they show a positive Von Pirquet reaction. It means that the individual has been exposed to tuberculosis and has acquired a certain degree of immunity which will serve him well if he is further exposed to tuberculosis.

The enlargement of cervical nodes as a sign of tuberculosis has been a much mooted point, but we are coming to the idea that tuberculosis originates in childhood. The glands, tonsils, etc., take it up. It rests there or is carried to the glands where it may remain indefinitely. We should pay a great deal of attention to palpatating the neck for enlarged glands. A tracheal whisper below the seventh cervical spine should be looked on with suspicion, indicating probably enlarged bronchial nodes.

Two things of great importance in the diagnosis of early pulmonary tuberculosis are: first, the close check on the suspect over a long period of time for fever and loss of weight, second, stereoscopic X ray plates of the chest with a careful and detailed history of the case.

Dr. H. B. Hamilton, Omaha: As brought out by Dr. Moyer, we should be careful to distinguish between tuberculous infection and tuberculous disease. So far as I know, the one physical finding that means activity is moisture. It should be persistent and localized.

The diagnosis of tuberculosis in children seems to offer more difficulties than in adults. It has been said that under one year, 10 percent are infected; after the age of fourteen, all but 10 percent. It is true that almost every infant exposed, does acquire it. The Von Pirquet reaction in childhood should be emphasized. Under a year, it undoubtedly means activity; under three years, very probably; under five years, it is of very great importance.

The tuberculous lesions in the child are different from those in the adult. In the child we almost never see consumption. The most common lesion of tuberculosis is in the bronchial glands. There may be a lesion as small as a pea or a grain of wheat, but soon there is infection of the tracheo-bronchial glands. Given a child with a history of exposure and with a positive test, and enlargement of the tracheaobronchial glands, parasternal dullness, and brassy voice, and the X ray, we are justified in concluding he has tuberculosis, and he should be so treated.

The symptoms indicative of activity in the child are also different. The fever may be very low. Tuberculosis, of itself, gives rise to a low temperature only. It is only when secondary infection occurs that we find high fever.

TUBERCULIN TREATMENT OF TUBERCULOSIS.

By R. M. Fouch: C. F. Heider: Kenneth Hoover: From the undergraduate service — Uni. of Neb. College of Medicine.

HISTORICAL.

Discovery of Cause: As an introduction to this paper it will be necessary that a few historical facts in relation to tuberculosis and the discovery of its cause be mentioned.

The fact that tuberculosis is a specifically inoculable disease was shown by Villiman ⁽¹⁾ as early as 1865. The tubercle bacillus was probably seen in microscopic sections through tubercular areas by Baumgarten ⁽²⁾ in 1882.

It is to Robert Koch, ⁽³⁾ however, that

medical science is indebted for the discovery of the tubercle bacillus by special cultural and staining reactions. In 1882 he also noted that the tubercle bacillus was present in a great variety of affected organs and tissues from which he procured the bacillus in pure cultures under great technical difficulties. It was at this time that he propounded his famous postulates establishing the pathogenic character of organisms at the 10th International Medical Congress at Berlin in 1890. Koch announced his belief that he had found a remedy for tuberculosis. The introduction of tuberculin which was prematurely considered a cure for the disease, (but not entirely erroneously so), was hailed all over the world as an event of the greatest scientific moment. Honors of all kinds were showered upon the discoverer, although he himself limited his claims to the possible cure of early phthisis by this remedy.

A number of failures and fatal cases resulted impairing the confidence of the profession at this time. It abated little of Koch's reputation, especially after the discovery that tuberculin was most reliable as a diagnostic agent, and rightfully so since its action is dependent upon poisonous nucleoproteins. It is not absolutely specific, for a like reaction can be brought about by various nucleoproteins, such as yeast nuclein, bacterial proteins and similar substances, as well as the known fact that repeated doses of tuberculin can produce an insusceptibility to reaction.

TYPES OF TUBERCULOSIS AND THEIR ANOMALOUS SYMPTOMS.

It is merely necessary to mention that we find tuberculosis of birds, cold blooded animals, etc. The fact that these organisms closely resemble the human and bovine types in reaction to stains and other phenomena was first clearly established by the work of Theobald Smith (4). That the bovine tubercle bacillus was a distinct type from the human tubercle bacillus, and as such produced certain signs of definite and constant character. Some modification may however, occur in passing from host to host. Smith, however, believes the modification of the bovine bacillus in the human body beyond recognition as such by bacteriologists seldom if ever occurs (5). It necessarily predisposes to a prolonged sojourn, and probably years at the shortest. It follows that the tubercle bacillus when recovered from the human body may be identified as of bovine or human orgin. A number of observers have encountered bacilli of the bovine type in the human subject, it is therefore plain so far as evidence goes that infection by bovine bacilli can and does take place. (6)

Inoculation experiments have shown that cattle can be infected with human tubercle bacilli from sputum, contrary to the view at one time enunciated by Koch. Evidence that the converse may occur is not lacking. Accidental wound inoculation of veterinarians with bovine tubercle bacilli has resulted in typical localized subcutaneous lesions, which in some cases have become generalized and have led to a fatal termination (7). These facts, however, important as they are, do not prove that food products from tubercular cattle constitute a common means of infection. Especially important studies in this direction have been made by Park and Krumwide (Journal of Medical Research 1910), on the examination of 478 cases of all forms of tuberculosis in New York City. These investigations conclude that a noteworthy percentage of cases of tuberculosis in children is due to the bovine type with mortality of six to ten per cent. The symptoms of the disease and the character of the lesion, except possibly for location of foci, are identical (8).

TUBERCULIN AND ITS PREPARATIONS.

The term tuberculin is used to designate a number of different therapeutic products from tubercle bacilli upon the market. These products differ from each other in their method of production, hence in their content of bacillary substances. Individual preparations also differ from each other when grown on different media and produced by different strains of the tubercle bacillus. They all contain substances derived from the tubercle bacillus and depend upon this fact for their specific action. There is one objection to applying the term tuberculin to all the bacillary products. It would be more accurate to speak of them as tubercle bacillary products or tubercle vaccines, in contradistinction to tuberculin as Koch's original preparation (T. O.) Old Tuberculin (9). The substance originally known as tuberculin (T. O.) is prepared by filtering a glycerin broth culture of the tubercle bacillus, then concentrated on a water bath to one tenth its original volume, which, when stored in a cold dark place retains its properties for months.

Deny's Tuberculin or Bouillon Filtrate (B. F.) (10) is a product which consists of the filtrate of bouillon cultures containing all the soluble products of the tubercle bacillus. It differs essentially from (T. O.) in that no heat is used in its preparation.

New Tuberculin (T. R.) (11). Koch, in 1897, prepared new tuberculin (T. R.) as a tubercular residue, calling attention to the fact that (T. O.) is a tubercular toxin and the immunity produced by it is immunity to the toxin and not to the germ. Therefore, Koch deemed it advisable not only to produce immunity to the toxin but also to the germ itself, hence (T. R.) was prepared for this purpose. In its preparation he used virulent cultures of tubercle bacilli dried in vacuo, and finely pulverized and treated with physiological salt solution, the centrifugate and the supernatant and opalescent fluid decanted and discarded. The residue is dried, ground and treated with physiological salt solution. The centrifugate and the clear supernatant fluid is collected and retained. This process is repeated until all residue is taken up and the centrifugates united and preserved with 20% glycerin. Thus each cubic centimeter of (T. R.) is standardized to represent 10 milligrams of the original dried tubercle bacilli.

Von Ruck's watery extract is made by extracting with water the pulverized bodies of the tubercle bacilli, washed free, then extracted with alcohol and ether for the purpose of removing fat.

The bacillin emulsion (12) (B. E.) of Koch, is a glycerin emulsion of living virulent unheated tubercle bacilli pulverized, containing five milligrams of the solid extract to each cubic centimeter (13).

LABORATORY EXPERIMENTATION ON ACTIVE IMMUNITY. (14, 15, 16)

From a resume of the present literature it will suffice here to say, that the specific reactions observed upon patients in their treatment with bacillary products is more convincing than those observed on laboratory animals to date. The greatest efforts are directed at present toward this latter pursuit from which much may later be expected.

DIAGNOSTIC AND IMMUNIZING REACTIONS.

Under this division it will be necessary to mention three types of reactions viz:

1. The general reaction (17).
2. The local reaction (18).
3. The focal reaction (19).

The action tuberculin has on a tuberculous patient is different from that on a nontuberculous patient, in that the tuberculous patient is already sensitized, even though he has little or no resistance to successive attacks, and reasons to believe that frequently a heightened susceptibility follows a previous infection. The body cells already possess the power of defending themselves against an attack of the tubercle bacillus and incidently destroying any and all bacillary substances which gain access to the tissues (20).

Tubercular vaccines contain tubercle proteins and other substances, such as lipoids. Tubercular protein must be considered as an antigen because it has the power, as demonstrated, to produce antibodies. Lipoids like proteins also have this power of stimulating production of antibodies and hence are considered antigens. These two substances are found in the vaccines in varying quantities. When tuberculin is introduced into the body it contains either proteins, lipoids or both. As such, they meet the body cells which are already endowed with powers of producing specific enzymes against these bacillary substances. These substances may differ somewhat from the antigens elaborated at the focus of infection; yet they are sufficiently closely related to them, to react to the same specific enzyme. When the body is being periodically or constantly stimulated by specific bacilliary substances, not only do the cells possess the power to produce specific enzymes, but also we must conceive of these bodies being thrown off into the blood stream and resulting in both histogenic and cellular immunity. In tuberculosis we must consider all the cells of the body as being sensitized. Tuberculosis is a chronic disease in which as a rule tubercular products are thrown out into the blood circulating intermittently over a prolonged period of time. Consequently ample opportunity is afforded the cells to take upon themselves the function of producing proteolytic enzymes, at a time when the body is in such a state of nutrition that the cells of the body are capable of reacting to their fullest capacity. The tuberculin reaction resulting from the combination of the tubercular substances contained in the vaccine employed and the antibodies found in the tuberculosis patient. But we can only conceive of this occurrence during the time when and after cleavage has taken place, when the toxic and sensitizing molecules are being or have been set free, to produce their respective reactions.

GENERAL REACTION (21).

This is characterized by a general toxemia, which symptoms consist of fever, malaise, lack of appetite, disturbed digestion, increased pulse rate and chilliness. This syndrome was formerly considered an integral part of the immunity reaction, but is now looked upon as a part of the tuberculin reaction. And this reaction heretofore described as a general reaction of tuberculin is now considered as a reaction of the body to the toxic molecule of the tubercle protein, which according to Vaughn and others has nothing to do with immunization.

The local and focal stimulation on the other hand are the important ones so far as the production of immunity and the stimulation of the cells about the focus of infection to the production of antibodies is concerned. These two substances result from the same cause and fail to appear in an animal or individual who is not already tuberculous.

LOCAL REACTION.

When the bacilli gain entrance into the tissues of an individual who is already infected, the reaction which ensues is the counter part of the reaction when tuberculin is thrown into the tissues of an already infected individual. This process of attack is accompanied by a local inflammatory reaction, which as in any case of tuberculosis is manifested by pathological changes in the tissues and must be looked upon as an attempt to check the process of invasion. In the case of tuberculin on the other hand no infection results. Instead an inflammatory process of greater or less severity is set up as a result of this specific reaction, characterized by an area of redness and swelling accompanied by heat.

THE FOCAL REACTION.

Tuberculin in its process of elaboration is broken up into specific sensitizing substances, which gaining access to the blood stream come in contact with the antibodies formed there. Secondly an increased number of free antibodies might be produced as a result of the tuberculin and thrown into the blood stream, which, circulating near the focus of infection, come in contact with the tubercle protein set free by the focus of infection. The focal reaction is a more or less constant accompaniment of the tuberculin injection. The degree of reaction depends upon the degree of defense present, also upon the amount of tuberculin injected. In order to produce a focal reaction it is necessary that the amount of sensitizing substances in the tuberculin given, be sufficient when elaborated by the specific substances in the body to have a surplus left to come in contact with cells of the focus. This may be brought about either by small injections at frequent intervals, or by the method which attempts to produce a toxic immunity, as followed by other clinical observers. There then seem to be two distinct bodies, one which is sensitizing or anaphylactic in its reaction, the other, the toxic, resulting in a toxic syndrome. The former is definitely connected with the production of immunity and healing while the latter produces a toxic reaction.

The question might arise, why does a patient not cure himself with his own tuberculin? In that tuberculosis is generally considered a chronic disease, bacilli are multiplying slowly if at all, liberating few toxins and inasmuch as these are necessary to focal stimulation, which is essential to bring about a cure, the process stops short of healing as a rule. In those types of tuberculosis where the process is quiescent, necrosis is not taking place. Collateral inflammation exists only to a slight degree if at all and toxins are not elaborated in sufficient quantities to produce the focal stimulation that is necessary to cure. So that the process again stops short of healing. It might in this connection be asked why a cure does not take place in cases when there is considerable activity in the lesion? The focus is surrounded by a collateral inflammatory exudate which causes a stagnation of the lymph, which is the nature of this disease. Even in these cases the action of tuberculin is sufficiently established by clinical experience to warrant its use. In active tuberculosis we find tubercles in all stages of development, and every variety of pathological process which attends the disease is found. While some areas are the seat of markedly active lesions surrounded by an exudative inflammation, which precludes, or seriously hinders the attainment of focal reaction, others are going through the process of healing, and are surrounded by little or no exudate. Still others represent new tubercles in the process of formation. The latter being more simple pathological processes are more accessible to the blood stream and are easily influenced by focal tuberculin reaction. And being freed from these pathological processes which are most serious, the body is relieved of their harmful influences, and thus more advantageously opposes the serious lesions. Every little area that is removed in tuberculosis helps the patient to overcome the disease to the extent that it affords relief from unnecessary drain and depression of the vital forces. It is sometimes thought that tuberculin treatment is contraindicated in cases where active tuberculous toxins are present in sufficient quantities to produce clinical symptoms of toxemia. Such patients are not ideal ones for tuberculin therapy, in fact they are not ideal for any therapy. What the tuberculin does in these cases is to hasten the destructive process, and to allow the necrosis and caseation to take place sooner and thus free the patient of a prolonged toxemia. Such use of tuberculin requires the greatest judgment and care, and should be given only by those of wide experience. (22)

CHOICE OF PATIENTS.

On account of the severity of the lesions found in advanced tuberculosis, it is impossible to secure healing in a large percentage of patients of this class, no matter what remedy or combination of remedies be used. This applies no more to tuberculin than it does to fresh air, good food, or any other measure used. The reason for this is that the lesion is larger and the fighting forces of the patient are less than they are early before the disease has existed for a long time and produced severe mechanical. and chemical changes in the body. Patients free from toxemia, usually spoken of as fever free patients, are the best for tuberculin treatment, because the pathological processes are more easily influenced and because such patients submit themselves to a more careful control of the effects of tuberculin. Patients with toxemia however, may be greatly improved with the cautious administration of this remedy. It seems that some increased tolerance to toxins is undoubtedly established by its use, yet this has not been proven. Generally speaking tuberculin is of value and aids greatly in the cure in advanced cases, even though they are suffering from toxemia sufficient to produce rise of temperature, providing of course the treatment is in skilled hands.

INDICATIONS AND CONTRAINDICATIONS FOR TUBERCULIN TREATMENT.*

From the literature on tuberculin many indications and contraindications for its use are given, but if they are carefully analyzed the following conclusions are reached:

(1). All patients who are favorable for cure are favorable for tuberculin treatment.

(2). All patients who have serious complications which might reduce their chances of cure, are unfavorable for tuberculin treatment.

This is also true of other therapeutic measures for tuberculosis. A few conditions might be mentioned where tuberculin if used in sufficient doses to produce marked focal reactions might be harmful, viz:

(1). Meningeal tuberculosis.
(2). Injudicious use.
(3). Advanced active tuberculosis.

As to time of administration. It is probably best not to administer tuberculin during acute complications such as influenza and pneumonia. It should be withheld in the presence of hemorrhage. For all those who have had little experience in the use of the remedy its use should be limited only to early tuberculosis, and chronic manifest inactive tuberculosis. It is easier and less hazardous to the patient to confine its use to those not suffering from toxemia. (24, 25, 26)

METHODS OF ADMINISTRATION (27).

(A) Choice of preparation.

Any preparation made from the tubercle bacillus may be used to advantage in treatment. This does not imply however, that all are equally suitable. Theoretically at least, the one that contains the greatest variety of substances derived from the bacillus is the best so far as the production of immunity against tubercle baccilli is concerned. However, there is far more in the method of administration than there is in the individual preparation used. One should choose a preparation of which he understands the action and should adapt the dosage to the pathological conditions present. It is far better that the physician master two or three preparations than to try to give too many.

(B). Methods of Dilution. (28)

In making dilutions for administration it is necessary to have pipettes and syringes on which the division of measurements is standardized. It is always essential to use the same syringe, or pippette, to preserve accuracy, so as not to alter the dosage.

The common method in this country is to make each dilution no weaker than the preceding one. It is important in administrating tuberculin to be sure the instruments be kept sterile. While it is possible that the tubercle proteins in the bacillary products are somewhat changed by coming in contact with such substances as, tricresol and phenol and other antiseptics, and might be different if diluted in the original solution, yet it is necessary to use such antiseptics to prevent the growth of bacteria. The advantage of the physician making his own dilutions is that he can make them up more frequently, thus keeping them fresh. In making dilutions rarely more than one should be made at a time and a new dilution should be made every day or so. For methods of dosage it is impossible in a limited discussion of this type to elaborate the bulky tables of dosage necessary in the tuberculin treatment, hence the physician is referred to standard text book treatises. It is, however, extremely important that the physician using tuberculin should know how much of the preparation he is using. One can have an idea of the action of the remedy if he bears in mind that he is giving only so many drops of a certain dilution. He should know what content of bacillary substance there is in a specific quantity of the dilution, or the value of the original solution that his dose contains.

(C). Methods of Injection. (29)

The four methods of greatest choice:

(1). The cutaneous. (30)
(2). The subcutaneous.
(3). The intramuscular.
(4). The intraveneous.

In most cases of tuberculosis which are treated by tuberculin, slow action is desired. This is obtained by the subcutaneous or intramuscular method. The protein is thrown into the tissues and comes into contact with the local cells. Specific ferments begin their process of breaking down the protein molecule, rendering it harmless preparatory to its excretion from the body. Injected into the body tissues in concentrated form, its toxic action is less than would be the case if thrown into the blood stream, and scattered generally throughout the tissues of the body. Aside from this the ease and safety of subcutaneous and intramuscular injection must be considered preferable to the introduction of a foreign substance directly into the blood stream. While today with our aseptic technique there is little danger from intravenous therapy, at the same time for general use the subcutaneous is preferable when it can be used with equal efficiency. As to the site of injection and to the time of day for injection, it is chiefly a matter of individual choice of the physician.

(D). Methods of Dosage. (31)

In the administration of tuberculin it is necessary to have some definite scheme. While it can be given haphazardly the same as any pharmaceutical remedy or the same as any physical measure, such as open air, food, etc., yet if one is most desirous of obtaining the best results, he must follow certain intelligent principals in its application. Tuberculin can be used routinely, but not to best advantage. The interval between doses should depend upon the amount of reaction which the patient will tolerate to the best advantage. The first thing that should be borne in mind is the pathology present. Whether the disease is active or quiescent, whether it is extensive or limited, whether it involves delicate tissues, such as those of the eye where only slight reactions are permissible, or such as those of the lung or larynx, where a more marked reaction may produce no harm, and on the other hand may even prove advantageous. One should be extremely cautious in the use of tuberculin, while the remedy may be suited to the patient no matter what his condition, yet at the same time it is necessary to avoid producing a focal reaction of such a degree as to produce harm. When arriving at the maximum dose that a patient will stand it should be repeated after a time, or changed to another tuberculin preparation. Again starting at the lowest dose and going up until tolerance is reached in the new preparation. The dosage of tuberculin however, cannot be considered except in connection with the interval. There is much confusion regarding dosage. One of the most common conceptions is that large doses are harmful. A large dose depends upon what dose has preceded it, and its action depends very much upon the interval that has existed between it, and the preceding dose. The emphasis which Wright* laid upon small doses had apparently reconciled the profession to a certain extent to the use of tuberculin. Their opposition was based largely upon the fear of reaction from tuberculin, and is mostly associated in their mind with large doses. This however, is a wrong conception. The proper dose of tuberculin is one which produces the desired effect when given at the proper interval following the preceding dose. The action of the small dose of tuberculin lasts only a short time, while that of a large dose lasts for a considerable time. Consequently, the interval between doses must lengthen as the size of the dose increases. There is a time immediately following each dose of tuberculin when a reaction would most likely follow if another dose were given. There seems to be a period of increased sensitiveness which is later followed by a period of increased tolerance or decreased sensitiveness. This period represents the time when increased immunity response is not only evident, but is at its highest point. This is also the time when whatever focal reaction was present has probably passed away. Often, after this period of increased tolerance has passed away, it is evident that a period of hypersensitiveness and an increased liability to reaction again reappears. The length of the period of heightened immunity and likewise the return of hypersensitiveness varies according to the patient's reacting powers, also according to the dosage coming on more quickly and passing off earlier after small doses, than after large ones. It is during this period of increased tolerance that the next dose should be given. For if the dose is given immediately following the preceding one, a dangerous reaction will probably ensue due to the summation of actions. The two doses are more than the specific proteolytic enzymes are able to destroy, without first setting free sufficient quantities of toxic substances to produce toxic effects. If however, the succeeding dose is not given until the first dose has been acted upon by these specific ferments, then it will be cared for without a reaction following. Increased immunity following each dose lasts only for a certain length of time depending upon the size of the dose. Then if another large dose is given after this period of increased tolerance has passed away, the dose will again be too large and may result in a reaction the same as if it were given too soon. There are two principle methods of giving tuberculin; one that of producing toxic immunity by gradually increasing the dosage until the patient tolerates a very large dose of tuberculin; the other by repeating at frequent intervals the same dose of tuberculin. Generally speaking, the former method or that of producing toxic immunity is the one to be preferred. By this method the patient can have the dose repeated within a short time, so that he may tolerate a million or more times the first dose without producing a reaction. The dosage must be repeated frequently enough not to produce a condition of hypersensibility, or intolerance, for as has been shown , a condition of anaphylaxis develops if any foreign body is injected into the body in small doses at infrequent intervals. After four or five doses a condition of increased hypersensitiveness develops. That this does not occur more frequently in the administration of tuberculin in tuberculosis is probably due to the fact, that while tuberculin administered is not identical with the protein developed within the focus in the body, it is so nearly identical that there is already established a degree of desensitization of tolerance to it. The introduction of tuberculin then, even in the haphazard way it is often employed, and which would be disastrous were it an entirely foreign form of protein meets conditions which prevent increased sensitization. In order that tuberculin be used intelligently, a knowledge of the existing pathology in the individual case should be known. The importance of this is based upon two facts. (1). The focal reaction following the dosage, and the varied character of the disease. This is an inflammatory reaction which takes place in and around the focus. This reaction may be of any degree, from a slight hyperemia to a severe congestion, and it may be accompanied by a slight or severe exudation. In some cases such a result will do no harm, while in others it may prove very injurious. If one knows the pathology present he can more intelligently determine his tuberculin therapy. From this it is seen that it is necessary to make a periodical physical examination of the patient throughout the course of the treatment and make a record of each examination. This will give one a fair working guide for the management of the patient and enable him to note what changes have occurred. The question of the length of time necessary for tuberculin treatment is difficult to answer.

It cannot be set down as though it were a treatment of so many doses, or one which depended upon attaining a certain maximum dose. There has been a general tendency among chemists to try to cure the disease faster than the pathological changes can take place. At best it is a long drawn out period of treatment, but it cannot be completed short of the time it takes to produce the necessary pathological changes. The rapidity with which a lesion will heal is dependent upon its extent, its severity, its location and the reactive powers of the patient. One patient will make as good progress in six months, as another will make in nine months or a year. Many patients, who fail to receive satisfactory results in six months, could do so in nine months. Many patients, who fail in nine months, could succeed in twelve months. Persistence is important and so long as pathological changes are favorable to treatment it should continue. It is sometimes best to interrupt the treatment of tuberculin, at a time when the physical signs of the chest are arrested and the chest is practically free from moisture. Or in a case where cavities are present, until the moisture is confined to the cavity. Then let the patient rest and live an ordinary hygienic life without tuberculin over a period of from three to six months. Then resume the tuberculin treatment for a period of six months, then another period of rest after which the treatment is again repeated. Patients by this method are given the benefit of extra therapy when they are likely to begin to decline without it. Extra stimulation which is given at this time seems to promote healing more soundly. Very often patients who have not put on weight during the first treatment, do so during the second or third periods in which they receive tuberculin. It is quite common to see the physical endurance of the patient greatly improve during his latter period of tuberculin treatment.

THERAPEUTIC VALUE AND RESULTS (32).

Just what can be claimed for tuberculin treatment is difficult to say because no man who is capable of intelligently administering tuberculin would be satisfied in administering it alone. Tuberculosis is a many sided disease and is one in which we unfortunately do not have a specific upon which we may safely rely to bring about a cure. In treating the disease intelligently we must employ measures which have a tonic stimulating effect upon the patient's cellular activity, so that metabolic processes in the body will be carried on normally, keeping up the ordinary repair, relieving the harmful effects produced by toxemia and having sufficient reserve energy to overcome and heal the tuberculous infection.

In some cases either open air, good food, rest or psychotherapy alone may be sufficient to produce this effect. In others it may have to be combined or more added. Tuberculin acts by stimulating the defensive powers of the cell. These powers are greatest when the cellular activity is nearest normal. Consequently, it would be foolish to use tuberculin and rely upon it alone; it should be reinforced by other measures which stimulate the reactivity of the body cells so as to give the tuberculin opportunity to act to the greatest advantage. Efficiency of tuberculin has been sufficiently shown in the treatment of tuberculous laryngitis. If the laryngeal lesion is not too active in a patient with favorable pulmonary involvement his chances of recovery are good. Even some cases which have a serious pulmonary lesion may obtain healing of the laryngeal lesion. If however, the laryngeal infection comes on as a complication associated with activity in the lung and a rapidly spreading disease in a patient whose body cells have lost their power of reacting, then little hope can be offered by the use of tuberculin, or any other remedy. Pottenger has treated several cases of tuberculosis of the tongue in which he could easily observe the effects of tuberculin dosage. This being an infection of muscular tissues, it is found extremely difficult to heal although the process has been chronic in character. He has noted hyperemia to appear about the focus of infection following many doses of tuberculin and by keeping them up over a prolonged period of time he was able to secure healing in all instances when the pulmonary lesion was not too active. In one case under his treatment he was able to obtain a result by keeping up focal stimulation over a period of more than two years. Two ulcerations were present at the beginning of the treatment, and the patient was suffering from an active pulmonary lesion which had gone through periods of marked activity with high fever. However, it is not necessary to have these visible evidences of fibrosis following the use of tuberculin to prove its efficiency. The same thing is noted in pulmonary cases. The amount of fibrosis and the rapidity of its formation may be alternated by the degree of contraction in the lung, as evidenced by the shifting of the mediastinum and diaphragm, month after month. The displacement taking place between monthly examinations being sufficient to make them easily demonstrable by palpation and percussion. It has also been observed by the study of the active history of these patients that a definite healing is produced in a larger percentage of cases than is produced where tuberculin was not employed. Theoretically there is no doubt of tuberculin as a therapeutic measure. Clinically there is considerable doubt, if one considers the opinions of all observers regardless of their right and ability against such an opposition. One must however, take the same attitude toward tuberculin as he does toward surgery, or any other therapeutic measures. He will then be forced to agree that tuberculin has value. All do not obtain satisfactory results with tuberculin, neither do they with any other therapeutic measure. If we take as our standard the best results which can be produced. we then must admit that tuberculin is a valuable measure in the treatment of tuberculosis.

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TREATMENT AGAINST ACUTE AND CHRONIC PURULENT PLEURITIS.*

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The recent influenza epidemic with the frequent incidence of purulent pleuritis furnished a great amount of material for further study of means for combating this condition. That the world war was in progress simultaneously with this epidemic augmented the favorable opportunities for investigations by permitting segregation of pleuritis cases and intensive study of larger groups. The interest manifested was reflected in the flooding of the medical literature, in 1918-1919 particularly, with exhaustive reports. At this time a digest or resume of the facts gleaned in these studies should be of value.

The intensive study in empyema clinics was thus carried out by two groups of investigators, the work of each complemental to the other. The laboratory technicians performed an enormous amount of work by which they determined in the field of pathogenesis the varieties of bacteria at work, their relative virulence and the variations in pathology induced by each, while in the domain of anatomic pathology the necroscopist observed the diversity and multiplicity of lesions and compared the radiographic and physical findings with the actual pathology. The clinicians experimented with various surgical procedures, particularly closed systems of drainage, and notably advanced our knowledge in treatment of both acute and chronic types.

BACTERIAL AGENTS.

The records from the bacteriological laboratories have verified previous observations as to the common cause of purulent pleuritis and supplied additional information as to their relative frequency and their portent from a prognostic standpoint.

Briefly, purulent pleuritis complicating pneumonia or influenza regardless of the cause of the previous disease is due to invasion of the pleura by one or more of the following organisms and the frequency of the causative agents is in the order of their naming:

1. Streptococcus hemolyticus.
2. Pneumococcus.
3. Streptococcus viridans.
4. Mixed infections (one or more of the above).

While in different cantonments there was some variation in this proportion it may be accepted that the streptococcus hemolyticus and the pneumococcus are the most frequent inciters of purulent pleuritis. From a prognostic standpoint the evidence seems conclusive that the cases in which streptococcus hemolyticus were present had a higher mortality and a more rapid course. No notable suggestions have been offered as to any variation in treatment based upon causative bacterium. It has been suggested however by Hartwell (1) of New York that the success attained by treatment by the closed method of drainage was due to the special type of empyema occurring with influenza and that the empyema commonly observed in civil life unassociated with an influenza epidemic does not manifest the same etiology or pathology and is not amenable to that treatment. No data has been gathered wherein a particular kind of treatment has been applied to a series having a common bacterial cause, therefore at present our treatment is based on anatomic pathology and is irrespective of the bacteria involved.

The pathologists have observed in the necropsy rooms some facts worthy of consideration as possible factors in treatment and experimental work has been carried out to substantiate the claims that have been made as to the pathological foundations for avoiding pneumothorax in treating empyema. The observations of most practical importance to the clinician are:

1. The collection of pus in empyema may be at various sites.
2. The pus is thin and greenish during the first few days and at this time the resistance is low. The pus changes to thick and yellow in a few days when resistance against the infection is greater.
3. Late changes result in encapsulation of pus, thickening and immobilization of the mediastinum, and compression of the lung by the thickened pleura.
4. Graham and Bell present an entirely new conception of the physics of respiration.

EMPYEMA SITES.

The lateral wall of the chest though commonly the location of empyema pus, is not the only site for its occurrence.

Wherever there is pleura the pleuritic effusion may occur. In the prolongation of pleura between the lobes of the lung, between the pleura and the pericardium and between the pleura and the diaphragm, the purulent process may start and in any of these locations the pus may become encapsulated and can be diagnosed only with the greatest of difficulty. The findings of the pathologist have proved that neither the exploring needle nor the X ray picture is infallible in the diagnosis of encysted empyema. But the difficulty of determining the site and extent of the abscess emphasizes the necessity of fluoroscopic and radiographic study in combination with the most painstaking physical examination. The importance of this recognition of encysted empyema undiscoverable by aspiration or X ray examination is emphatically urged by Ashhurst, (2) who advocates exploratory thoracotomy "when symptoms are urgent, medical measures have failed, repeated punctures are negative and yet the presence of pus seems certain."

CHARACTER OF PUS INDICATES VIRULENCE.

That history repeats itself is a timeworn adage and we have its application in the recognition of an important clinical fact; then its apparent relegation to forgotten lore, and later its resurrection as a new discovery. Pathologists have aided in again establishing the dictum that no major surgical operation should be done early in acute empyema. This dictum is of such paramount importance as a surgical principle that I would rank it with that expressed by Deaver concerning the acute abdomen in these words, "let the exact diagnosis await the revealing power of the mighty scapel". In the latter case the rapidity with which the irreparable sequelae supervene upon certain acute conditions makes imperative early surgical interference; while it is a rarity so infrequent as to be almost an anomaly when surgery is so urgent in chest conditions. The high mortality in early major surgical operations in empyema is not fully explained since the respiratory embarrassment incident to establishing a pneumothorax is insufficient to cause it. The clinician as well as the pathologist has observed that when the pus is evacuated and pneumothorax established while the pus is still thin and greenish in hue the prognosis is more grave. We can establish a rule that unless the symptoms are very urgent such as extreme dyspnoea, cyanosis, and bulging of interspaces, no major surgical procedure that will collapse the lung and produce pneumothorax should be done until the pus has become thick and yellow. By this time the visceral pleura will have become thick, and the pus more or less encapsulated and the natural antibodies against the invading organisms developed.

PHYSICS OF RESPIRATION.

The physics of the pleural cavities under conditions of pleural exudates and pneumothorax was made the subject of experimentation by Graham and Bell,(3) who claimed to demonstrate that our conception of the mediastinum as a rigid partition between two pleural cavities that function separately was erroneous. Their contention was presented as an argument in favor of closed methods of drainage and is startling in its complete renunciation of the teachings of physiologists as to the mechanics of respiration. However their conclusions were based entirely on pressure manometer readings on both sides of the chest under varying conditions of pressure on one side, and on animal experimentation by methods that did not represent the empyema state. Their claim that the mediastinum is a flexible partition and that increased pressure in one thoracic cavity is equally communicated to the other is entirely contrary to fluoroscopic and radiographic appearances in empyema and pneumothorax.

The evidence presented by fluoroscopic and radiographic examination of the chest in pneumothorax and empyema is so conclusive as practically to refute the contention of Graham and Bell. The mediastinum moves slightly to one or the other side in the presence of a definite degree of positive pressure on one side but beyond this comparatively slight extent it does not further move even under the enormous pressure sometimes present in pus accumulations or in spontaneous pneumothorax. This is strikingly proven in cases of spontaneous pneumothorax in tuberculous cases wherein the relatively great positive pressure on one side does not markedly move the mediastinum to the opposite side. Also in traumatic pneumothorax in which even the enormous pressure induced by the pump-like action of the pleural cavity does not greatly compress the mediastinum. Therefore, for all practical considerations the pleural cavities may be considered as separated by an almost rigid partition and the alleged mobility of the mediastinum cannot be used as an argument for any special form of treatment.

The encapsulation of pus by marked thickening of the walls of the abscess cavity is a physical factor of great importance in that the thick wall with adhesions to the parietal pleura at its margins withstands the atmospheric pressure that impinges upon it when open pneumothorax is induced so that there is reduction in the extent of collapse of the lung on the same side as the empyema. This fact furnishes one of the important arguments for late operation where an open pneumothorax is considered.

TREATMENT OF ACUTE PURULENT PLEURITIS.

From the clinical side the experiments, chiefly in army cantonments have given rise to a considerable amount of argument and discussion as to the superiority of the closed or the open method of draining the pleural cavity in acute cases. The weight of opinion as it appears in the reports from those who worked in the empyema clinics of cantonments is favorable to the closed method. While the technic varied in different camps in minor matters certain essential principles were:

1. No air was allowed to enter the pleural cavity.
2. Thorough repeated evacuations of pus were obtained.
3. Irrigations with antiseptic fluids were practiced.
4. The lung was not collapsed.

It is claimed for these methods that they avoid the respiratory embarassment that results from the pneumothorax induced by ordinary thoracotomy and that the operation being a minor one does not cause the shock that attends the major one. The fact that the lung is not collapsed by the pneumothorax and in fact expands to fill the potential cavity as the pus is withdrawn under closed technic does away with many of the deforming sequelae of open thoracotomy. Clinically they claim a shorter course and recovery with less wasting of flesh and debility.

Against these views are alligned those who believe that only an open thoracotomy will provide adequate drainage. This opinion seems especially held by older surgeons who have had long experience with empyema in civil practice and at times when influenza did not prevail.

As expressed by Hartwell(1) of New york; "No form of treatment of empyema which disregards the thorough drainage of the chest cavity by a rib resection and the gradual reexpansion of the lung by respiratory efforts meets the requirements. Other means will cure only a certain number of cases particularly in such times as the disease occurs in abortive forms which it has done in the past two years."

No doubt in the enthusiasm of efforts in a new method of treatment the success of the closed drainage system has been overestimated and likewise it may be true that the older surgeons who have attained considerable success for years in one method reluctantly admit the advantages of the new one.

The statistics are conclusive that the closed drainage methods have cured a high percentage of cases of purulent pleuritis in recent years especially during the war and it is also certain that some cases eventually require more extensive surgery to effect a cure. It is desirable to restore the pleura to normal with as litle discomfort and mutilation as possible providing that in such an attempt a more serious condition will not supervene or that the mortality will not be higher. Although it has been suggested that the empyema which was so prevalent in the recent influenza epidemic had a tendency to be abortive and that its variation from the types met with in ordinary times was responsible for the success of the closed methods at that time, we do not have any guiding principle to determine whether in a given case the one or the other method would be preferable unless it be the element of duration of the disease. With a proper recognition of the importance of "masterful waiting" and the observance of the rule that no major operation should be performed early, the adoption of a simple closed method of drainage in the interim will not increase the danger to the patient nor increase the pathology. It will however reduce the intrathoracic pressure, improve the respiratory embarassment and eliminate toxines. In the meantime the probable success of the closed method in that particular case will be indicated by the progress of the disease and if eventually an open thoracotomy is required the empyema cavity will be smaller and the patient's resistance greater.

CHRONOLOGICAL MANAGEMENT

Since the pathology of empyema varies so markedly in different stages of the disease a chronological system of management may be adopted based on the recognition of the pathology existent at different periods in the course of the disease.

In the earliest period of acute pleuritis the treatment should be medical with the object in view of supporting the strength of the patient and limiting the degree of respiratory embarassment resulting from the accumulation of pus, by repeated aspirations or the adoption of a closed method of catheter drainage. During the early period the watchword should be masterful waiting improving the time by employing the physical findings the X ray and exploratory puncture in accurately ascertaining the size, location, and number of abcesses and the character of the pus. Interference by major surgery in this stage is only justified if urgent symptoms such as dyspnoea, cyanosis and bulging interspaces are unrelieved by aspiration or in the rare cases where although the pressure of pus seems certain it cannot be found by aspiration. Ashhurst (2) relates success in several instances by exploration under local anaesthesia and discovery of an encapsulated empyema that escaped detection by the aspiration needle.

Since the special advantage to be gained by the closed method is by virtue of the prevention of pneumothorax the technic selected should be one that will insure that protection. The use of the Dietrich trocar and canula in which all of the air chambers are protected by a flexible rubber covering facilitates the work. The site of election will be one in the 9th interspace in the posterior axillary line if there is massive empyema. For small localized collections of pus the point of puncture will depend upon accurate localization. After novocaine anaesthesia the trocar is made to describe an arc beginning in the skin opposite the lower border of the rib and passing upward to the upper border and then horizontally between the ribs. The curved route assists in obtaining a valve-like action in the drainage tubes. A rubber catheter is passed through the canula and the canula withdrawn leaving the drainage tube in situ. The distal end of the drainage tube is kept closed by a clamp at all times, except when aspirating and irrigating then it is clamped and released alternately with disconnecting and attaching a syringe so that a closed system is constantly maintained. The frequency of aspiration and irrigation will depend upon the rapidity with which the pus reaccumulates and upon the availability of assistants. As often as every four hours has been practiced in special empyema wards while in civil practice once in 24 hours has proved effective. Various antiseptics have been utilized and especially Dakin's solution although the power to dissolve fibrinous flakes attributed to it has been disproved. The use of sterile and normal saline solution is non-irritating and equally effective as a cleansing medium. The use of irrigation should be judicious with care to avoid injection of a large quantity of irritating fluid through a perforated bronchus or spreading of the cavity walls by too great pressure. An irritating fluid tends to thicken the pleurae and is apt to cause compressed lung from an indurated pleura. The value of an antiseptic agent is doubtful. With this regime in many cases the empyema cavity will gradually or rapidly diminish in size and the secretions become sterile when it may be considered safe to withdraw the drainage tube. Reaccumulation, if the patient's general condition is satisfactory, should not be discouraging to the extent that open thoracotomy is at once done. Renewal of the closed method often brings success even after one or two apparent failures. This is shown in one of my cases where after three recurrences of pus in the cavity over a period of 3 months, final success was attained with no deformity of the chest and the complete expansion of the lung.

FAILURE OF THE CLOSED METHOD.

The indications that the disease is irresponsive to therapeutic aspiration by a closed drainage method are not sharply defined but depend upon experience and accurate diagnostic analysis.

That inadequate drainage is an important cause of chronic empyema is well established. The fact is used by opponents of the air-tight system as argument against that method. Unless adequate drainage is obtained and maintained constantly the system should be abandoned. To succeed with an air-tight system requires a persistence of effort and an attention to detail that is irksome and the services of a fluoroscope for frequent observation of the recession of the cavity is almost an essential. It is said that Sir Berkeley Moynihan classified himself as a physician practicing surgery. He who really falls in that class will find value in a closed method while a mere surgeon, who expects the operation itself to be the all-sufficient agent, will deem it a failure.

In a closed method the inadequate drainage may be due to:

1. Failure to locate the pus.
2. Flocculi obstructing the tube.
3. Presence of second pocket.
4. Associated bronchiectatic or intrinsic lung abcess.
5. Inattention to details of technic.

Clinically the failure of the method will be evidenced by progressive deterioration, a failure to return to vigorous health or a recurrence of fever, rapid pulse, and debility after a period of improvement. Careful physical and x ray investigation will reveal the cause of the persistence of symptoms and prompt a change of procedure.

Whether air-tight or open thoracotomy is used; deterioration is progressive or if there is not rapid return to vigorous health or there is persistence of fever, rapid pulse, and weakness or continuation of purulent expectoration with slow recession of the cavity, search should at once be made for complicating pathology, and if undiscoverable by common methods major thoracotomy and exploration is indicated.

CHRONIC EMPYEMA

There is no sharp dividing line between the subacute and chronic empyema. When the disease has existed several weeks and is not showing progressive improvement it may be considered chronic. Failure of an empyema to clear up in normal time is due to:

1. Inefficient technic of drainage whether closed or open.
2. Complication of additional pathology.
   (a) Communication with a bronchus.
   (b) Hidden lung abcess.
   (c) Encysted empyema with small communication.
3. Tuberculosis.
4. Foreign bodies (drainage tube) in pleural cavity.

The essential pathology, whether it is induced by inadequate drainage, an associated lesion, tuberculosis or a foreign body, is marked thickening of the pleura which compresses the lung. Formerly it was supposed that the compressed lung underwent a fibrosis and lost its expansibility when confined for a long time by the thickened pleura. Recent results of decortication however indicate that this opinion is erroneous and that the lung will expand when the visceral pleura is excised unless there has been destruction of lung tissue by associated abscess or tuberculosis.

The management of chronic pleuritis should be based on the cause of chronicity. The following procedures are available:

1. The use of Beck's bismuth paste.
2. Thoracotomy and rib resection.
3. Major thoracoplasty and decortication.
4. Collapsing thoracoplasty.

BECK'S PASTE.

The use of Beck's Paste or "Bip" or 5 to 10% iodoform in vaseline or similar antiseptic pastes is applicable in a small percentage of cases where there is adequate drainage or narrow long cavities with complicating pathology. The method should be tried in such cases because it is frequently successful and obviates an operation. The paste probably asepticizes the cavity and stimulates granulation.

RIB RESECTION.

Simple rib resection over the lowermost portion of the cavity may prove effective if the previous thoracotomy had been at an unfavorable site or if a closed system of drainage had been insufficiently managed. Success will not result if the pleura has become so thickened and indurated as to compress the lung markedly, although if there is moderate thickening, blowing exercises may overcome the compression. The restoration of free drainage will lower the temperature, reduce the toxemia and improve the general condition so that a more formidable curative operation can be resorted to later.

THORACOPLASTY AND DECORTICATION.

Fowler in 1893 described decortication of the lung markedly, although if there is modsed lung. Howard Lilienthal placed the operation on a more solid foundation by developing a thoracoplastic technic involving wide approach through rib-spreading retractors and careful dissection of the thickened pleura from the lung cortex. In all cases of chronic empyema with compressed but not contracted lung the procedure is applicable. The indications as to compressed lung are clear in that when with adequate drainage and free exit of pus without complicating hidden empyema, lung abscesses or tuberculosis the cavity does not diminish it is evident that either compressed lung or contracted lung is present. In most cases the determination of contracted lung must wait the result of attempts to secure reexpansion by decortation.

The thoracoplastic operation presents an inspiring sight when with delicate dissection of the overlying pleura the elastic lung is freed and expansion immediately takes place. Small alveolar perforations are apt to occur in the operation evidenced by escape of air but if of small size no harm results. This operation is the rational one for dealing with chronic empyema with compressed lung and until it has been utilized and failure of reexpansion of the lung demonstrated no collapsing thoracoplasty should be considered.

COLLAPSING THORACOPLASTY.

Collapsing thoracoplasty is indicated only after decortication has proved that the lung is permanently contracted. The well-known operations of Estlander, Schede or Wilms may be adopted as seems best adapted to the individual case.

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THE SURGICAL TREATMENT OF EMPYEMA, WITH SPECIAL REFERENCE TO THE MOZINGA METHOD.*

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Several years ago we were all pretty generally of the same mind regarding empyema. It was a closed subject. Its diagnosis was easy. To miss it was inexcusable. The treatment was simple. Resect a rib, put in a tube and leave the rest to the nurse. Later the patient was instructed to spend months blowing on a bottle or other means to expand the collapsed lung.

The mortality was not high. The end results in spite of the long time elapsed were uniformly good.

The lungs did not always expand nor did the wound always cease to drain as soon as we thought it should. It was frequently necessary to do extensive operations on the chest wall to cure permanent fistulae or to overcome a pneumothorax. But on the whole the subject seemed to be quite settled. Everything was fine until the influenza developed with its great number of secondary pneumonias widely disseminated through the lungs and involving so much of the breathing area. Then we saw things from an entirely new and different angle. Quarts of pus were found post mortem that had been unrecognized during life. In a few cases it was not found where it was thought to exist. The former mistake was much more common. The mistake was not always by the amateur. I have seen the chagrin of really careful observers when caught in this situation. I have been there myself.

When we study this subject we are forced to admit that we know little about its etiology. It is secondary to a great many conditions but is practically always secondary to something if only a fibrinous pleurisy which in turn is a complication of something else.

We do not know how it occurs nor how it can be prevented nor why it should complicate some cases and not others, but we do know that it is a serious complication, that it is sometimes difficult to recognize and that it is frequently overlooked. We also know that if it is recognized and treated properly, we have done something worth while and the patient has been given a better chance to fight his pneumonia and effect a recovery.

Granting then that we have an empyema even if we do not know how it got there, it is our problem to discover and treat it, and first of all we must be eternally looking for it.

Certain things about the patient help a little. In some large effusions the chest wall has a smoothed out, rounded appearance but I have never seen the interspaces bulge nor have I ever seen an edema of an uninfected chest wall. The affected side lags behind in respiration and sometimes it measures more than the other side. Most of the patients have a peculiar short dry cough and a peculiar groan which seems to depend as much on their general misery as anything.

Dyspnoea is a variable factor, apparently depending on the extent of pneumonia present and the rapidity with which the fluid has formed. I have seen large effusions with none. An increase in the dyspnoea in a pneumonia should put one on his guard. Littens' phenomenon is of value only in showing that something is wrong.

Our chief reliance must be placed on physical signs. These being governed by physical laws are always the same under given circumstances. They never change and always mean the same providing our interpretations are correct.

The pathology in the underlying lung affects all of our signs as it alters the physical conditions.

After aspiration has been performed we get an entirely new set of signs. Whether this is due to the admission of air I do not know, but in any event we frequently find ourselves at sea and it is well not to rely on any one sign but to draw our conclusion from all the information we can gather.

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*Read before the Box Butte county medical society, Alliance, Neb., Oct. 6, 1921.

It is well to remember that no matter how small the amount of fluid, it tends to spread evenly over the whole pleural surface. It does not first accumulate in the dependent parts and rise upward but exerts its pressure equally on all parts of the lung. The lower portions being more compressible there is a greater amount of fluid at the base and physical signs are first noticed there, but it is not necessary to have the patient sit up to allow the fluid to settle to the bottom. It would be there if he were standing on his head. The woody flatness to percussion is first noticed at the base. It seems to have an upper border which rises as the fluid increases and above this we get a resonant note but we are getting it through a thin layer of fluid. It takes a depth of one inch to give a flat note. There is no shifting line of dullness before aspiration but it can be demonstrated afterwards especially if there is some air present and no firm adhesions. Crepitating sounds are heard both with and without fluid. If fluid is present it is reasonable to suppose they come from within the lung but it is hard to tell the difference.

Breath sounds of course are usually distant but sometimes come through large exudates surprisingly well, but when distant are valuable if accompanied by other signs. Practically the same thing can be said of diminished fremitus. Bronchial breathing is not a sign of fluid but of underlying consolidation, and may be heard through fluid.

Voice sounds either spoken or whispered are increased or diminished without much rule but in general I believe it is safe to say that before aspiration they are diminished or at least not increased, while after aspiration they are usually increased.

The whispered voice assuming an amphoric quality especially plain at one point may show where pus can be aspirated in difficult cases but I think that air has a good deal to do with this. Before aspiration voice sounds at best are unreliable. Change of stomach tympany in Traube's space to dullness is of no great value. It occurs but by no means spells fluid in the left chest.

Displacement of heart and other organs is, next to the woody flatness, the most valuable sign we have. It occurs in small and large effusions also in encapsulations.

It is well in all pneumonias to keep a record of measurements of relative cardiac dullness. Measuring from the midline of the sternum to the right and left, at the base and at the apex. Comparing these from day to day is of great value. Frequent measurements of the area at the base gives the only diagnostic sign of importance of mediastinitis and I believe it is fairly reliable.

The X ray shows a flattening out of the plate, the costophrenic angle is obliterated, the ribs become hazy but may show through. It is hard to tell the difference between a complete consolidation and a large amount of pus. The picture varies with the character of the fluid and its thickness and of course is affected by the pathology of the lung itself. X ray men are usually quite positive in their diagnosis of fluid from the plate, but miss as often as anyone else.

Aspiration is quite harmless if carefully done and is frequently the only way to be sure. It is frequently negative, though in encapsulation.

The diagnosis is usually established by the woody flatness, distant breath sounds, displacement of organs, increase in the white count and is proved by aspiration.

After the empyema of the influenza pneumonias was recognized and operated upon early by the old methods the mortality was almost 100%. Few if any survived the operation unless performed late in the pneumonia. Those few that did live spent months getting to a permanent condition of disability that was a long way from normal.

The mortality was so high that in many places operation was abandoned entirely as the patient had a better chance if left alone. It was discovered that some cases would rupture into a bronchus and after a pretty stormy time would finally get well. A few small exudates were undoubtedly absorbed or otherwise handled by nature. Some men discovered that they saved a case now and then by aspirating the fluid every few days and not operating at all. Then as the conditions we were combating became better understood the causes of failure were recognized and the battle was half won.

In our old types of pneumonia we had either a relatively small area involved as in the lobar pneumonia or when empyema complicated a lobular pneumonia. It occurred late enough in the disease so that the patient had breathing area enough to withstand loss due to the inevitable pneumothorax attending any operation, even aspiration, if not done carefully.

The post influenza pneumonias, however, were different. The exudation occurred early, at the time of maximum lung involvement.

The fluid itself impinged on the breathing area but when evacuated by open operation the lung collapsed and the patient died as he needed what little space he had on that side.

Some little success was accomplished by aspirating carefully until the pneumonia had spent its force. Then operation either by rib resection or open thoracotomy was not attended by the fearful mortality.

Many attempts were made to conduct the drainage in an air-tight manner to avoid lung collapse and hasten expansion. Some of the methods were quite ingenious but all were cumbersome and had many faults. Most methods involved an open operation first allowing the lung to collapse and then after sealing the tube in the chest wall and applying suction in some manner sought to overcome the collapse and secure continuous drainage.

There were many difficulties. In the first place the patient had to stand the collapse which was bad. The chest wounds did not seal easily and remain so. The various forms of apparatus rigged up to maintain a steady suction possessed mechanical difficulties which sooner or later nearly always produced failure. Late in 1918 a technique was worked out by Capt. Mozinga in the Walter Reed Hospital which answered all requirements for recent or late cases, for those which had been already operated by open methods and healed with pneumothorax or were still discharging. By this method it was possible to treat successfully a bilateral empyema, seldom successful by any other method.

Where a mediastinitis communicated with a pleural cavity it too yielded to this method. Interlobar encapsulations can be drained and I would not hesitate to attempt the treatment of an uncomplicated mediastinitis, a purulent pericarditis or a lung abcess although I have never had the opportunity with any of the last three.

The site of operation of course depends on the localization of the pus, but the point of preference in ordinary empyemas is the first space below the angle of the scapula and a little anterior. Local anaesthesia is quite successful and the patient need not be removed to the operating room although it would be somewhat easier for the operator, but if the patient's condition is such that moving would be hazardous the operation is so simple it can be performed with the patient in his own bed. The patient is turned so that he lies on the unaffected side with his face away from the operator. The point of operation is determined with the patients arm at his side, but is then raise to increase the width of the interspace. Aspiration should confirm the existance of pus beneath this area, but only a few cc. should be withdrawn. An incision is made parallel to the rib borders just large enough for the trocar and its canula to pass snugly. The skin offers the only real resistance. The trocar and canula are then passed directly into the cavity using a firm steady pressure but guarding against jumping when resistance is overcome. One can feel quite plainly the lack of resistance ahead of the trocar. There is very little pain although the pressure on the chest wall increases the dyspnoea.

Before undertaking the next step it is necessary to tell the patient to hold his breath or to conduct this step during inspiration but if neither is possible and if the worst should happen, if the lung should collapse it can be overcome so soon afterward that no damage is done. Dietrich has a rather elaborately modified trocar to accomplish this step without the danger of a temporary pneumothorax but I prefer the simpler instrument. The trocar is rapidly removed and a catheter is inserted in its place in the canula and passed inward until it is well within the chest.

It is well to test the catheter before starting the operation and again after boiling to see that it just fits the canula and will pass easily. Catheters do not run true to exact sizes. Anywhere from a 22 to a 26 French may be the right one.

The outer end of the catheter is closed with a hemostat, so that unless air has been admitted between the canula and the chest wall during its introduction no air is admitted to the chest. The pus is now withdrawn by using a syringe attached to the end of the catheter reapplying the hemostat each time the syringe is removed. Removing the fluid slowly I can see no disadvantage in removing all of it. The cavity is then flushed with Carrel-Dakin's or normal salt solution until the fluid is reasonably clear. Unless one is sure of the Carrel-Dakin's solution I believe I would prefer the salt solution. A slight pull on the syringe brings about a condition of negative pressure within the chest so that it is not possible to have a primary pneumothorax. A loop of rubber is slipped over the end of the tube and passed nearly to the chest. A safety pin is passed through this and strapped to the chest over a small piece of gauze. A small split dressing is applied over this and the tube with its hemostat is strapped to the chest wall. The frequency with which it is necessary to withdraw new accumulations of fluid depends on the rapidity with which the fluid is formed. Every eight hours for a few days and later twice a day or even once a day is the average.

Pleural adhesions rapidly form so that the tube need not be in place long. The fluid obtained at each dressing rapidly diminishes and in most cases the tube should be out in two weeks. Either irrigating fluid will break down the large fibrinous masses that are sometimes seen.

When the canula was removed the chest wound was infected but the tissues will continue air tight around the tube for four or five days, after this it is necessary to pack with strips of iodoform gauze to keep the system closed. The packing should be carried out in such a manner that the wound forms a crater. This is to prevent undermining of the skin which is serious with any method.

In dealing with old cases with large air cavities, that have been operated on by an open method it is well to make a new opening if the old one is healed, but if still draining one should select the largest tube which can be passed and by packing this can be made air tight. For a few days the tissues retract making the opening larger but granulations soon form which hug the sides of the tube and are often sufficient to exclude air unaided by packing until the tube is removed.

Because of adhesions and pleural thickening old cavities take time to cure and possibly some are incurable in this way, but I have been successful in many that have existed for weeks, a few that have existed for months and in one case a fistula was cured that had existed nearly a year. I have seen patients die of pneumonia or from some complication but I have never seen a failure of this method to handle the empyema complication, unless the cavity or fistula communicated with a bronchus. In this event I know nothing to do except pray that the bronchial end will close.

There are many conditions that depart from the usual that must be handled according to their peculiar needs.

When an empyema or mediastinitis or lung abscess ruptures into a bronchus, if the patient does not immediately drown he frequently gets well rapidly but I believe a large pyopneumothorax draining into a bronchus should be drained outside because it is better to have a patient alive with a bronchial fistula than to be drowned in his own exudates.

I realize that many very good men are still using open methods but I am unable to see their points of view. The closed method has many advantages and none of the disadvantages. It is a simple method which to the desperately ill patient means a great deal. The pneumothorax problem is under control. It is applicable in all cases regardless of the stage or type or extent of the accompanying pneumonia.

It is the only method by which a double empyema can be treated with any degree of success.

The patient's convalescence is shortened from weeks to days. The operation can be performed any place and after care is so simple that a good nurse can carry it out under any circumstances.

By controlling the pneumothorax we have a right to expect that it will be necessary to do extensive resections of the chest wall in only a few cases.

THE RELATION OF PHYSIOLOGY TO SURGERY.*

Czar C. Johnson, M. D., Lincoln, Neb.

This paper will be devoted to a few phases of the vasoviscero motor reflexes and confined largely to the abdominal and pelvic groups.

The nerve supply of the abdominal and pelvic viscera may be classified as extrinsic and intrinsic. The extrinsic may again be divided into the voluntary, supplying the striped muscles and the involuntary, innervating the unstriped muscles, serous tissue, skin and glands. The involuntary nerves may again be divided into the accelerators and inhibitors. The intrinsic nerves should be confined to the intestinal nerve plexuses of Auerbach and Meissner.

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*Read before the Lancaster County Medical Society, Jan. 22, 1921.

The voluntary nerves will not be dwelt upon only in so far as they indirectly react to involuntary stimulation.

The involuntary extrinsic group of accelerators is the vagi which supply the abdominal viscera to the lower part of the descending colon and the nervi erigentes which supply the remainder of the intestinal tract and pelvic organs. The inhibitors are the sympathetics of Langley's classification, the diaphragmatic, solar, semilunar plexuses, etc., by way of the splanchnics. These two sets of control are in touch with the central nervous system and subject to psychical impressions either excitatory or inhibitory in character.

Psychical influence is well illustrated by the suppression of secretions of the digestive organs through the reflex action of fear, rage and like emotions while the reverse obtains, increased secretions and function, under the influence of pleasing environments, music and song which for practical reasons is observed by the clever caterer. The poets stanza: "That all softening, overpowering knell, the tocsin of the soul, the dinner bell," is evidence of his keen observation. And by the same token the mother's crooning lullabies are physiological measures.

The digestive system is the manufacturer of our nutritional resources. It is therefore important that proper tone be maintained. It is a scientific fact that the home is the vital center of a nation. Next to the home is the school. The psychical trauma of the constant shrew or parental grouch does damage that time can little alter. Many children are robbed of their birthright by these agents. The only salvation for these little unfortunates is the surcease they derive from nature, the public school and the Sunday school.

"Men are but boys grown tall, hearts don't change much after all." What applies to children is applicable to adults with modification. With children and adults having unstable nervous systems, it should be made an inflexible rule to avoid disagreeable topics, threatened punishment and like stress, before, at, and immediately after the meal. Nature should at least be given a chance. Unobservance of this dictum produces conditions which the internists with the aid of the allied specialists are called upon to remedy. If psychical trauma is capable of producing morbid conditions it must follow that its elimination plays a large role in the therapeutics thereof, and in my opinion it does and further, that changed environment is a big factor in our treatment.

The intrinsic nerve plexuses of Auerbach and Meissner control the movements of the intestinal tract to a certain extent at least, and apparently have little central control. Experimental work on this division is not conclusive. The vagi and sympathetic connections have been severed yet digestion as to motility and secretion continued undisturbed. At present there is much work to be done before this set of nerves can be placed in a perfect classification. I wonder if they may not hold the secret of the cause of some of our major gastro-intestinal disturbances? The upper abdomen is a test of the diagnostician's prudence. Many an erroneous diagnosis is made by misinterpreting signals. This is not strange when one stops to consider this area from an embryological standpoint. The process of rotation and shifting to place the organs in the amount of space allotted, producing in the end close proximity, together with innervation locally, as well as from a distance, and the centering of sympathetic nerve trunk lines into the solar and semilunar plexuses, invites confusion in signs and symptoms in this region. The right phrenic nerve arises from the third, fourth, and fifth cervical. Its distribution is perhaps overlooked more often than any other referred pain sense in this locality. If it is remembered that it innervates muscles of the shoulder, the pericardium, pleura and the diaphragm, sending out communications to the liver through the falciform ligament and to the anterior parietal peritoneum as far as the umbilicus while the posterior branch communicates with the diaphragmatic plexus under the liver, regrettable mistakes will be avoided.

There is another cause of pain in this region that is seldom mentioned or recognized. I refer to referred stimulation of the vagi, producing hypertonicity of the muscles supplied by these nerves. One frequent cause, there are several others, of this referred stimulation is apical abscesses tonsillar and sinus infections irritating the fifth and glossopharyngeal nerves. I have lately seen two cases illustrating this phenomenon. I believe that we will soon recognize this phase of the effects of focal activity with reflex action on many parts of the body, which today we attribute to new foci transferred hematogenously. Ross divided pain into two divisions for diagnostic purposes, namely: splanchnic or visceral pain, characterized by being dull and deep, and as a rule localized near the site of its origin, and somatic or referred pain located at some distance from the seat of the inflammation. It is still a valuable guide to follow.

The lower part of the descending colon, the rectum and anus together with the urinary bladder and genital organs are under inhibitory control through the sympathetics, by way of the inferior mesenteric ganglion. The accelerators, however, are through the nervi erigentes made up from fibers leaving the cord by way of the second, third and fourth sacral nerves passing to the hypogastric plexuses and controlling the internal sphincters of the bladder and rectum.

This part of the tract presents another anomaly. Cunningham's experimental data shows that the cerebrospinal nerves convey motor impulses to the longitudinal fibers and inhibitory impulses to the circular fibers, while the sympathetics convey motor fibers to the circular and inhibitory impulses to the longitudinal muscles of the rectum.

Normally there is no fecal material in the rectum. The impression made by the descent of fecal residue produces a reflex stimulation of the accelerators of the internal sphincters. What applies to the mechanism of the rectum is true of the bladder. Upon the act of urination the impression is coincidently felt by the rectum and this fact is made use of in treating some forms of constipation. We have however another factor to consider. The external sphincter must harmonize with the internal. The nerve supply is from the inferior hemorrhoidal, a branch of the pudendal nerve from the sacral plexus in direct central connection and therefore to a large degree voluntary. (There is some sort of independent innervation but this has not been clearly demonstrated). The tone of these two sphincters supplemented by the striped muscles, produces the expulsion. The internal sphincters are a part of the internal muscular coat of the rectum and urethra respectively and indirectly subject to central impulses, therefore classified by Langley as para-sympathetic. The acts of defecation and urination are primarily involuntary in character and remain so until later in the period of growth of the individual whereupon the voluntary factor is incorporated. Stimuli of inhibitory or accelerator function from psychicial trauma or spinal affections, from foci of infection, and endo or exo enteric toxins, throughout the genito-urinary and digestive tracts as well as from the peritoneal cavity, plays a large role in the disturbance of this equilibrium, the maintenance of which is so essential.

Head founded the law, that "When painful stimulus is applied to a part of low sensibility in close central connection with a part of much greater sensibility, the pain produced is felt in the part of the higher sensibility rather than in the part of the lower sensibility to which the stimulus was actually applied. When from any cause one or the other cutaneous senses is depressed in a given area, stimulation of the region may give sensations which are referred to the symmetrical area on the other side of the body, or if this is involved it may be referred to the next above or below in the spinal order." Reflex nerve stimuli, explains pyloric spasms, increased peristalsis, either forward or reverse, mid-line pain in affections of the organs of the upper and lower abdomen, because these organs were embryologically mid line, localized surface pain and many other epigastric and abdominal pictures. This recognition of referred pain to abdominal skin areas, to intra abdominal organs, to the genital organs, and stimulus producing tonic contraction and often inhibition of the lower bowel simulating ileus in renal and ureteral pathology should never be forgotten.

Personally, I believe that reflex inhibition produces ptosis of organs, and the non-recognition of this factor accounts for the failure of mechanical surgery in such cases. It also explains the confusing phenomona of sensory and motor phases because of this intricate nervous relationship in lesions of the pelvic adnexa, bladder, prostate and anus.

In the skin there are two systems of sensory nerve fibers. One conveys extremes of pain, heat and cold. This kind of sensation is found in viscera and is called protopathic. (Until Hertz and Meltzer's work it was thought that hollow viscera were not capable of receiving painful impressions). This system is made up of three distinct sets of fibers for extremes of heat, cold and pain. The other system is more delicate and receives light impressions of heat, cold, tactile sense and pressure, so-called epicritic sensibility, and is found in no other organ but the skin. Both sets of this division of cutaneous nerves are susceptible to reaction through referred stimulation.

As painful stimuli of viscera are reflected to circumscribed areas over the normal location of the organs involved, we make use of this knowledge in diagnosing various conditions through subcutaneous sensibility. A more delicate method is the use of protopathic and epicritic sensibility. Instead of using pressure to produce pain or tenderness, by applying epicritic methods we may secure an expression of heightened or lessened sensibility over these areas, to the stroke of a pin, a feather of cotton or carefully controlled heat and cold, comparing with areas on the same level and supplied by the same segment. This method is a valuable diagnostic measure if used as a routine in all visceral affections. An acutely inflamed appendix will present a surface area of hyperaesthesia, to be followed by one of hypoalgesia if it becomes gangrenous, and the same is true of a circumscribed loop of intestine, or the gall bladder.

This procedure is necessary to differentiate, hysteria, traumatic lesions of, intra and extra dural tumors of, posterior nerve root involvement of, and hemorrhage into, the spinal cord, from abdominal and pelvic visceral pathology.

The vasomotor system is a highly finished mechanism subject to slight stimuli. It deserves careful consideration as a cause of and in the treatment of disturbances of the respiratory, gastro-intestinal, genito urinary and special organs. The close affiliation between this system, the brain, the endocrine and chromaffin systems, (some authorities place the chromaffin system in a separate classification for while its derivation is from the sympathetic ganglionated cells, it later assumes anatomical independence and maintains its chromatic and possibly functional characteristics), must be kept in mind. The woman who tells you she was chilled in the rain or snow and missed her period is not always a prevaricator, the elderly gentleman with prostatism had best keep his feet warm and dry if he does not wish to feel the iron hand of vasomotor disturbance, and the child who plays with the neighbors cat, later developing a coryza, cough and lassitude has not always contracted an infection of the respiratory apparatus. There are many other examples that might be mentioned.

The vasomotor system has its efferent and afferent communications. "The efferent fibers are divided into vaso constrictors and vaso dilators. The vaso constrictors are distributed mainly to the skin and abdominal viscera, through the splanchnics, all connecting with a general center in the medulla and in constant tonic activity.

The vaso dilators are distributed to erectile tissue, glands, bucco facial region and muscles. They are not connected with a general center in the medulla.

The afferent fibers are divided into pressor, depressor and depressor reflex dilator fibers.

The pressor group causes vascular contraction and rise of blood pressure from reflex stimulation of the vaso constriction center for example the sensory nerves of the skin.

The depressor fibers cause vascular dilatation and fall of arterial pressure from reflex inhibition of tonic activity of the vaso constrictor center, as seen in the depressor nerve of the heart.

The depressor-reflex vaso-dilators cause vascular dilatation or fall of arterial pressure from stimulation of the vasomotor dilator center as manifested in erectile tissue and congestion of glands in functional activity." It may be said without gross exaggeration that these nerves play a tremendous role in all our affections, and yet are given less consideration than many relatively unimportant organs.

Heat is perhaps the greatest natural remedial agent we have. The application of heat to the chest or abdomen reflexly raises blood pressure and visceral tone. Its use is based upon scientific grounds.

The end results upon the application of heat and cold to a limited area are identical if an equal divergence from a given point say 98 degrees is followed, although produced in a different manner, subject however to psychic influence. Heat stimulation of the skin heat bulb reflexly dilates areas stimulated. Cold contracts to a certain stage. Then from a reaction through perhaps the paralysis of the constrictor fibers or reflex stimulation of the vasodilator side of the mechanism the vessels become dilated. A moderate degree of heat or cold produces paralysis of the terminal nerve ends and no impression is conveyed. A luke warm application produces deadening of sensibility and is therefore soothing in character. What applies to heat and cold is also true of pressure. This soothing pressure influence probably accounts for the popularity of some cults who work it overtime.

The application of heat and cold when applied to large areas of the body involves stimulation or inhibition of the heat mechanism and is utilized successfully in some affections of disturbed metabolism.

The effect of surface stimulation differs radically from the application of heat, cold or pressure to viscera. On these organs it produces a rapid fall of arterial tension and inhibition of accelerator tone. In experiments upon dogs in 1916 we were able to demonstrate this conclusively. The effect of these agents simulated phases of shock and the degree could be increased or diminished depending upon the media used. To eliminate central influence as much as possible, companionship before the operative experiments was practiced.

Therefore when a hot sponge is put into the abdomen, or the viscera exposed to unaccustomed atmospheric pressure or temperature, or when they are subjected to unknown trauma either physical or chemical, it is done at the expense of vasomotor tonus and shock in some degree with its train of concomitant associations, is produced, (not to mention mechanical changes which will inevitably follow) any one of which together with the anaesthetic or psychical inhibition may produce disaster.

Many postoperative lesions and exits are caused by the violation of these physiological laws of vaso and viscero motor control. The recognition of their influence is essential to success and the reduction of postoperative convalescence to the minimum, a goal we should all strive to reach.

We are in the physiological era of surgery. The surgeon of today must be more than a skillful operator. The prudent man recognizes this and is governing himself accordingly. It is well to remember that every advance made in medicine or surgery was foreshadowed by the work of some silent, plodding, oftimes unrecognized laborer in the field of fundamentals. And further that there can be no such thing as independent specialization in the treatment of the human ills, as every part is bound up in the whole. Only by conscientious cooperation will success attend the physician and real service be rendered the patient.

STRANGULATED FIBROID COMPLICATING PREGNANCY.

J. Frederick Langdon, M. D., Omaha, Neb. (Department of Surgery—John A. Creighton Medical College.)

The patient, a young woman, 27 years of age, was seen in consultation with Dr. A. Sachs on account of a severe pain in the lower right quadrant of the abdomen. History was as follows:

Had small pox and lobar pneumonia at nine years of age, chicken pox at eight years and mumps at thirteen. Three years ago had an attack of acute appendicitis, was confined to bed, but no operation. Has had some pain occasionally since in appendiceal region, but nothing severe. One year ago, had a severe attack of influenza with bronchopneumonia. Recovery complete. Menstruated at eleven years and has always been regular, usually menstruates two days, flow scanty. Always severe pain first day. Vomits occasionally. Seven months ago patient became pregnant. About the third month, noticed a "lump," as she expressed it, in the right lower quadrant. Patient states that she could feel it quite plainly, but it was not tender or painful. As pregnancy progressed, "lump" gradually became larger and ascended higher in the abdomen. On November 9th, patient was seized with severe pain in the back. This came on at one o'clock in the morning and lasted until noon. Pain gradually wore off by afternoon. The following day, patient experienced a "throbbing pain" in the right side over the tumor. This pain became very severe during the day. A hot water bag seemed to aggravate it. Pain radiated to back and right groin. Had frequent micturition during the day. A physician was called, who gave a hypodermic of morphine. Patient rested during the remainder of the night. During the next day, patient felt worse, vomited every hour. She was seen that night by Dr. Sachs, who made a diagnosis of strangulated fibroid of uterus. I saw the case with him the following morning. Patient at this time was feeling much better. Temperature and pulse normal.

White blood count, 12,500, 85% polymorphonuclears. Examination revealed the presence of a tumor in the right flank just above the crest of the ilium. It was very hard, about the size of an orange, and could be grasped between the examining fingers. Pressure over the tumor elicited severe pain. Muscular rigidity was not marked. The uterus was enlarged to the size of a seven months' pregnancy. Patient, at this time, was resting fairly well, but vomited occasionally. Bowels moved with enemas. Patient was removed to hospital and subjected to operation. A muscle splitting incision was made over the tumor. On opening the peritoneum, a small quantity of fluid was found present. Coming off the lateral wall of the uterus was a fibroid tumor, about the size of an orange. The lower pole of the tumor was impacted against the crest of the ilium. Tumor was attached to uterus by a pedicle 4 cm. in length, and was completely twisted on its pedicle, the vessels at the base of the tumor being intensely congested. Tumor was removed, as was also the appendix, which presented itself in the wound. Care was taken not to disturb or handle the ovary. Patient made an uneventful recovery and left the hospital on the fifteenth day. Two months later was delivered of a full term baby.

Edward Ochsner, in a recent article*, makes interesting and practical observations on the function of the corpus luteum. He states it is his belief "that abortions following abdominal traumas are caused by injuries to the true corpus luteum and not to traumatism to the uterus itself, and that in operating upon a pregnant woman, the important precaution is to avoid traumatism to the ovary containing the true corpus luteum." This case would tend to confirm that view.

*Surgery, Gynecology & Obstetrics, November, 1920.

BOARD OF COUNCILORS MEETING.

January 9, 1922.

The annual meeting of the Board of Councilors of the Nebraska State Medical Association was held at the University Club, Omaha, on Jan. 9th at 6:00 P. M. They had as their guests: President B. B. Davis; Secretary-Treasurer, R. B. Adams; Librarian, W. P. Wherry; the Program Committee: E. L. Bridges, S. R. Hopkins; the Committee on Journal and Publication, F. A. Long, B. F. Bailey, W. O. Bridges, and A. J. Brown and Mr. Gene Huse. The following members were present: Morris Nielson, A. P. Overgaard, R. W. Fouts, A. J. Stewart, R. D. Bryson, F. Tornholm, N. T. Johnston, H. J. Lehnhoff, A. E. Cook and H. E. Potter.

The meeting was called to order by the chairman and the new Council organized by Dr. Nielson being reelected chairman and Dr. Overgaard reelected secretary.

Dr. C. A. Selby of North Platte was appointed Councilor of the 11th District by President Davis to succeed Dr. H. E. Mantor.

The reports for the past year were then read as follows:

Secretary-Treasurer.

The Nebraska State Medical Association began the year 1921 uncertain as to what the year would have in store for it. Due to the general business depression, the year was begun with a great deal of wonder as to what condition we would be in at the end of the year. This proved to be needless worry, however, for the year just passed has been an excellent one for the Association. The membership has increased from 1,167 on Dec. 31, 1920 to 1,189 on Dec. 31, 1921, which is the largest in the history of the Association.

The annual meeting also broke all records in attendance.

One new county society, Keith County, has been organized and it is hoped that in the near future at least one more will be added.

The different Councilor District meetings which have been held have been a big step in advance and have added to the strength of the Association. The secretary thinks it safe to say that this has been the Association's best year.

Respectfully submitted,
R. B. Adams, Secretary-Treasurer.

Librarian.

Herewith I hand you the Librarian's report for the fiscal year 1921. To summarize, there has been received 332 magazines and 23 books—a list of which are appended.

It seems to me the governing body of this Association should urge all members to avail themselves of the splendid opportunity offered in our Library.

Journals Received.

Journal of the American Medical Association
Journal of the Arkansas Medical Society.
California State Journal of Medicine.
Colorado Medicine.
Illinois Medical Journal.
The Journal of the Indiana State Medical Association.
The Journal of the Iowa State Medical Society.
The Journal of the Kansas Medical Society.
Kentucky Medical Journal.
The Journal of the Maine Medical Association.
Bulletin of the Medical and Chirurgical Faculty of Maryland.
Medical Herald.
The Journal of the Michigan State Medical Society.
Minnesota Medicine.
The Journal of the Missouri State Medical Association.
The Journal of the Medical Society of New Jersey.
New York State Journal of Medicine.
Northwest Medicine.
The Ohio State Medical Journal.
The Journal of the Oklahoma State Medical Association.

The Pennsylvania Medical Journal.
The Journal of the Phillippine Islands Medical Association.
The Journal of Radiology.
The Rhode Island Medical Journal.
Southwestern Medicine.
The Journal of the Tennessee State Medical Association.
Texas State Journal of Medicine.
Virginia Medical Monthly.
Volta Review.
The West Virginia Medical Journal.
Journal of Dental Research.
Archivos Rio Grandenses de Medicina.
La Escuela de Medicine.
Sanidady Beneficencia.
Revista Medico-Quirurgica.

Books Received.

The Assessment of Physical Fitness—Georges Dreuer.
Diseases of the Skin—Richard L. Sutton.
General Pathology—Horst Oertel.
Basic Diets—Edward E. Cornwall.
Psychopathology—Edward J. Kempf.
Radiography of the Chest, Vol. 1, Pulmonary Tuberculosis—Walker Overend.
Principles and Practice of Infant Feeding—Julius H. Hess.
Practical Psychology and Psychiatry—C. B. Burr.
The Wassermann Test—Charles F. Craig.
Epidemic Respiratory Disease—Eugene L. Opie.
Human Heredity—Casper L. Redfield.
Operative Surgery—John J. McGrath.
The New Pocket Medical Formulary—Wm. Edward Fitch.
Handbook of Electrotherapy for Practitioners and Students—Burton Baker Grover.
New and Nonofficial Remedies, 1921—American Medical Association.
Birth Statistics for the Birth Registration Area of the U. S. for 1919.
Optimistic Medicine.
Rational Treatment of Pulmonary Tuberculosis—Charles Sabourin.
Eye, Ear, Nose, and Throat Nursing—A. Edward Davis.
Episcopal Hospital Reports, Vol. V.
The Glands Regulating Personality—Louis Berman.
Reports of the Council on Pharmacy and Chemistry of the A. M. A. for 1920.
The Life of Jacob Henle—Victor Robinson.

Medico-Legal Defense Committee.

In reporting for the year ending 1921, your Committee submits the following:

Relative to our activities in the broadened field, authorized by the last meeting of the Association, we have been successful in securing three convictions of illegal practitioners, one being fined twice before quitting, forced a third one to stop practicing under threats of prosecuting, and are now working on a fourth case. Warhoochee Areyano, the Indian-Hindu Princess, referred to in our last report as having been perviously convicted in Dodge County, was again convicted by a jury in Saunders County. Due to pending litigation, the law may soon be determined in this state that such persons can be enjoined from illegal practice, and if so established, we will surely invoke it against some of these people. We may here state that if any member of the Association be aware of any violators of this law in their locality the information will be gladly and confidentially received by the Committee. Plans are being considered to get this matter to the members, as we can be materially aided by the cooperation of the local physician and surgeon.

Three new medical cases have arisen during the year, two of them having been disposed of, one resulting in a verdict for the defendant, and the other resulting disastrously. The latter case was not tried, and it would seem that the local attorney employed by the doctor and the attorney for the plaintiff joined in a common intent to rob the defendant, and did so.

Our cases pending from the last report have been reduced by one in trial, with a verdict for the defendant; one is in progress of settlement, and one is set for trial on January 17, 1922. We are not crowding the trial of the remainder of them, hoping by the rule of some of the District Courts, to get them dismissed without trial, and are not losing any rights by the dilatory tactics.

A recent opinion of our Supreme Court, Carpenter vs State, dealing with the illegal practice of medicine, gives us a good deal of courage in our new work. In that case an attack was made upon the medical practice act because it failed to provide for the examination of persons who were desirous of practicing "Napropathy," and that because the statute failed to so provide, that it was unconstitutional. This treatment was defined as a drugless method of treating diseases and disorders of the human body, founded about fifteen years ago, and was a Bohemian treatment used in that country for years. It was also contended that the defendant was using only an ordinary household treatment. In all of these contentions the court held directly against the defendant. A copy of this opinion can be secured and read to the Association, if desired.

Respectfully submitted,
J. S. Welch, Associate
R. B. Adams, Secretary
A. S. Von Mansfelde, Chairman.

Campaign Committee.

The undersigned chairman of the Campaign Committee desires to report that he has been very inactive the past year. This inactivity being due to the fact that everybody is tired of war and nobody was looking for a fight with us. We can be very optimistic for the future for at the present time the chiropractors are divided into two groups each trying to dislocate the others spines. The osteopaths are watching the fight and are waiting for an opportunity to break a few of their bones. The scientists are busy praying that none of them will be killed.

In a serious vein, however, our committee could be made 50% more efficient if the county societies would all choose representatives for this committee. Only about half have done so. I suggest that your honorable body prod them up a little bit.

Respectfully submitted,
K. S. J. Hohlen, Chairman.

Committee on Public Policy and Legislation.

Your Committee on Public Policy and Legislation has practically nothing to report as their work during the past year. There has been no session of the Legislature and nothing of a special nature to consider. A special session of the Legislature is, however, probable, and if this comes it is possible that the call may make possible action upon certain public matters, as for instance the Sheppard-Towner bill.

If this bill and some others come up, it is altogether probable that the chairman of your Committee will ask for a special session with the Councilors before the Committee takes action as to their attitude in the matter.

Respectfully submitted,
Benj. F. Bailey, Chairman.

Sub-Committee.

This committee is held over from the previous two years, and inasmuch as our legislature meets but once in two years and this is an off year, there is very little to report. However, the committee has maintained its organization and is prepared to take action upon any matters which may require attention. It is possible that a special session of the legislature may be called some time in the next sixty days. The committee stands ready to act in any emergency.

E. W. Rowe, Chairman.

Committee on Medical Education.

Your Committee on Medical Education and Hospital Inspection desires to make a brief preliminary report.

We are cooperating with this department of the national organization in a reinspection of the hospitals of the state. The plan of minimum standards for hospitals using internes is not so major a feature as the one of hospital betterment in all hospitals in the state. A better staff organization, some centralization of the laboratory work, case records and filings, with more genuine cooperation, constitute our hope. We will have a detailed report ready for the annual meeting of the Association.

The committee will welcome any suggestions from the executive body of our organization.

J. S. Welch, Chairman.

Report of the Auditor of Accounts.

General Fund.

Receipts and Disbursements.

November 30, 1920 to December 31, 1921.

November 30, 1920, Balance		$1.861.94
RECEIPTS.		
From Dues	$5,961.00	
From Rent	130.00	
From Interest	1.10	
From Miscellaneous Sources	10.50	
		6,102.60
		$7,964.54
DISBURSEMENTS.		
Investment	$2,500.00	
Transferred to Journal Fund	1,797.00	
Transferred to Defense Fund	1,198.00	
Salaries	499.17	
Rent	263,25	
Telephone	109.71	
Postage and Office Supplies	195.90	
Traveling and Delegates' Expenses	268.30	
Printing and Stationery	130.00	
Auditing Books	40.35	
Convention Reporter	150.00	
Surety Bond	5.00	
Exchange and Miscellaneous	21.88	
		$7,178.56
December 31, 1921, Balance on Hand		785.98
		$7,964.54

Defense Fund.

Receipts and Disbursements.

November 30, 1920 to December 31, 1921.

November 30, 1920, Balance		$2,921.66
RECEIPTS.		
From Interest	$ 1.21	
From General Fund	1,198.00	
		1,199.21
		$4,120.87
DISBURSEMENTS.		
A. S. von Mansfelde Salary	350.00	
A. S. von Mansfelde Committee Expense	50.00	
H. A. Bryant, Attorney's Fees:		
Johnson vs. Hopper	25.00	
Doane vs. Hubenbecker	25.00	
Chandler vs. Thomsen	150.00	
Investment—Peters Trust Co.	2,500.00	
		$3,100.00
Balance in Fund, December 31, 1921		1,020.87
		$4,120.87

Journal Fund.

Receipts and Disbursements.

Year Ended December 31, 1921.

Balance January 1, 1921		$1,467.35
RECEIPTS.		
Collections—1921:		
From Members	$1,789.50	
From Other Sources	4,818.98	
		6,608.48
		$8,075.83
DISBURSEMENTS.		
Salaries	1,380.00	
Press Clippings	38.50	
Commissions on Advertising	21.60	
Publication Expense	3,947.04	
Postage and Miscellaneous	24.96	
Investments	1,000.00	
		$6,412.10
Balance December 31, 1921		1,663.73
		$8,075.83

Motions were made, duly seconded and carried that the reports be adopted and placed on file.

A report from the special committee appointed to investigate the Workmen's Compensation bill, asking that they be allowed to report at the annual meeting of the Association, was received and placed on file.

After a discussion as to means of stimulating interest in the county societies, Dr. Johnston moved that a quarterly bulletin, called the County Secretary's Bulletin, be issued and sent to each county society secretary. Motion seconded by Dr. Stewart.

Dr. Fouts moved that the motion be amended to include the county society presidents and the councilors. Motion seconded and carried as amended.

A communication from Arthur MacDonald of Washington, D. C. was read, and motion made by Dr. Potter that it be referred to Dr. Davis to investigate, the Council to abide by his decision. Motion seconded and carried.

A motion was made that a committee of three be appointed to make such changes in the Constitution relative to the sections on county societies as would be to the best interests of the Association. Motion seconded and carried. Dr. Nielson appointed Drs. Johnston, Bryson and Fouts to serve on said committee.

Dr. Nielson recommended that Dr. Lehnhoff send a letter to each councilor in regard to the question of prosecution under the fee splitting laws.

A vote of thanks was extended to the councilors by the secretary for the splendid work they did in connection with the cancer meetings.

Summary of Councilor's Reports—Year 1921.

District	Members	Deaths	Expense
1.	305	6	
2.	142	2	
3.	90	0	$34.40
4.	83	2	26.27
5.	99	1	16.65
6.	79	2	14.72
7.	78	1	28.00
8.	26	1	
9.	87	0	46.62
10.	117	0	68.25
11.	None Received		
12.	35	0	58.50

Adjournment.

NOTES BY THE EDITOR.

It you have anything special on your mind that you would like to unload through the Nebraska State Medical Journal, please communicate with the editor.

Forty American doctors are enrolled in the Vienna American medical association. The hospitals and clinics of Vienna, famous over the world before the war, are again packed with foreigners. At present Germany prohibits students from the former allied countries entering her clinics.

The three Nebraska hospitals for the insane, at present have more inmates than at any previous period. On the last of December the number totalled 2890, divided as follows: Lincoln state hospital, 965; Ingleside state hospital, (Hastings), 1200; Norfolk state hospital, 725.

It's too bad that a few Nebraska doctors are so much like some other people. Within the year just past members of the profession have been hailed before the courts, in bankruptcy proceedings, for habitual drunkenness, for committing abortion and manslaughter, and for breach of promise. We do not proudly advertise the fact, but truth will not down.

Dr. W. L. Bierring, Des Moines, well-known to many Nebraska physicians has been made an honorary member of the Royal College of Physicians of Edinburg.

St. Joseph's hospital, Alliance, is now fully accredited with the American hospital association and will in the future be operated under the standardized rules and regulations of the association.

Lorenz, or not Lorenz, that is the question.

A NEW CHANCE FOR DISABLED MEN AND WOMEN. FEDERAL AND STATE FUNDS NOW AVAILABLE.

Who May Be Beneficiaries.

Men or women who are so disabled physically by accident or disease, that they can not earn a livelihood and who are capable of being rendered fit to engage in some other occupation. In each case the feasibility of retraining both from the physical and vocational standpoints must be determined.

Where the Retraining is Done.

In public and private institutions, industrial plants, shops, offices, at home or anywhere the student may be trained efficiently in the most advantageous way and in the shortest possible time. No classes are formed because each case must be treatel individually.

Use of Funds.

Funds may be used for instruction, incidental fees regularly charged by schools, necessary books and supplies but no funds are available for the maintenance of students during training.

Workman's Compensation Act.

Acceptance of training by persons injured in industry does not deprive them of any rights under the Workman's Compensation Act.

For Civilians.

This service is distinct from that of the rehabilitation of disabled soldiers, sailors and marines of the World War, now being carried on by the Federal government.

Your Help.

You can help by sending in the names and post office addresses of any disabled persons whom you may know or of whom you may learn.

Adress: C. A. Fulmer, 204 University Temple, Lincoln, Neb.

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A NOTE ABOUT THE JOURNAL OFFICE.

A rather complicated change which the profession needs to know has taken place in the location of the Journal office, which is also the headquarters of the Nebraska State Medical Association. The McCague Building in which the Journal office has been located for some time has become the property of the Omaha Loan and Building Association and the new owner has given the building the name "Omaha Loan and Building Association Building," and by this name it will hereafter be known.

PAPERS FOR THE ANNUAL MEETING.

In the January number, under call for papers for the annual meeting April 24-27, the wish was expressed that members in the various sections of the state offer papers so that the meeting may be more nearly representative of the profession of the entire state. Too much emphasis cannot be laid on this proposition. Nebraska has an able profession and the ability is not confined to two metropolitan cities. Many of the men in the larger cities are teachers and therefore by self training are good writers and ready talkers. The country doctor—general practitioner or surgeon—by his very isolation is apt to be diffident and self conscious, as the writer has abundant reason to know. The rural profession owes much to these men from the cities; on the other hand the studies, observations and experiences of the men in the remote sections are of great importance and are highly valued by the city brethren.

The criticism sometimes heard about the lobbies during medical meetings to the effect that the city doctors monopolize the program is not well founded. Experience in secretarial work has proven that the condition complained of arises from a paucity of offerings by the rural profession. It is the aim of the program committee to make the next annual meeting of the association truly representative of the profession of the entire state of Nebraska, and to assure success in the larger sense it is necessary that the profession, rural as well as urban, contribute their mites to the success of the great annual event. "Foresters, do your duty!"

THE OMAHA MEETING.

The call for papers issued last month has not yet brought the results desired. Titles must be in office of the association, 609 Omaha Loan and Building Association Building, Omaha, not later than March first, but it will materially help the committee if titles are sent in at once.

It is high time for all to plan to attend the next meeting of the Nebraska State Medical Association. Every member should now be fully decided that nothing will keep him away from the meeting.

Every effort is being made by the programme and local committees to make this meeting the best ever held by this association. The program will contain a number of features never used at a meeting of this association before, and every one who has been approached on the matter agrees that they will add greatly to the value of the meeting. A special effort is being made to get physicians to give papers who rarely or never have done so, but who nevertheless have interesting things to tell.

Let every doctor, not only plan to attend this meeting, April 24-27, but talk about it to his colleagues and arouse all the interest possible, and when the time comes be present and bring some doctor who would not otherwise be there. Get behind the meeting and BOOST and make it the largest and best ever held by the Association.

—R. B. Adams, Sec.-Treas.

THAT WHICH IS WORTH WHILE.

The editor desires to make "The Societies" department, more valuable to the reader, but to do so he must have the assistance of at least one member from each county society, probably the secretary, or a reporter designated by the society. From press clippings we get information that a society has met at a certain place on a specified date, and that Dr. John and Dr. Jacob read papers on specified subjects. From this meagre report the editor must write a readable story for the journal; but it is not enough to make the story worth while. What is worth while is to know what salient points were made by the essayist. Take as a concrete example the following from the January Journal:

> "The Lancaster county medical society had as its guest of honor Dr. A. H. Andrews of Chicago. Dr. Andrews gave a splendid lecture on, "The Fifth Nerve." He described the anatomy, physiology and the clinical significance of this nerve. Laying especial emphasis on the recurrent branches from each one of the three main divisions, and showed clearly the different reflexes that can arise from the nerve along the course of these recurrent branches."

This is meat in a nutshell, and it is the sort of report of society meetings that the editor as well as the reader craves.

Not less important than the above is need of getting the report written at once after the meeting is held and sending it to the editor before it becomes ancient history. Cooperation of the kind indicated will be well repaid in more readable pages.

THE CLINICAL MEETING AT LINCOLN.

An epoch making meeting was held in Omaha, March 3rd and 4th, 1921, when the Nebraska Fellows of the American College of Surgeons held their clinical congress. Between the clinics held at the hospitals during the forenoons and the scientific meetings held in the afternoons the two days were crowded with entertainment for the many physicians who attended.

The second clinical congress is to be held in Lincoln, Feb. 6th and 7th. If it was good last year it promises to be better this year. This meeting is not merely a meeting of the Nebraska Fellows, but is to be a joint meeting of the American College of Surgeons of Iowa, South Dakota and Nebraska. The Lincoln Fellows of the College are exerting themselves to have a program which will appeal to all and it is predicted that it will surpass in excellence anything heretofore attempted in the state. It is hoped that as many physicians and surgeons as possible living in Nebraska and our neighbor states of Iowa and South Dakota will avail themselves of the privilege of attending.

With such men on the program as Dr. George Crile, Franklin H. Martin, Rev. C. B. Moulinier and others from abroad, as well as a good program by doctors residing in Nebraska, there is no question that all who attend will be entertained and instructed.

—B. B. Davis.

THE PSYCHIATRIC CLINIC.

Pollock and Furbush in Mental Hygiene of January 1919, give the number of insane in the state and private institutions in the United States on Jan. 1, 1910 as 187,791, on Jan. 1, 1918 as 239,820, an increase of 27.7% as against an increase of 13.6% in the general population. The average per capita cost of maintenance was $244.00, a total cost for 1918 of $58,080,000.00. Apart from the cost of maintenance, the economic loss sustained by this large number of individuals being withdrawn from productive life must run into enormous figures.

Pearce Bailey, chief of the Division of Neurology and Psychiatry in the Surgeon General's office during the war, basing his opinion on the proportion of male mental defectives found in the examination of 3,500,000 drafted men, 6.5 out of every 100, estimates the total number of male mental defectives in the United States as being over 353,210. He states that the number of mental defectives is three times as great as that of the insane. Again, only the physician is in a position to recognize what a vast number of patients apply for help who are suffering from nervous conditions arising out of faulty mental habits of personal and social adaptation.

These few sentences briefly outline the psychiatric problem and bring us face to face with a pressing need. With the increase in the complexities of our present civilization with their attendant stresses upon the human organism, it is of the utmost importance that there be disseminated throughout the country a clear and practical understanding of the scope and purpose of psychiatry.

Modern psychiatry adds to the study of the internal functions of the body, the study and treatment of the human personality and of those disorders which affect the adaptation of the individual to his life situation. The present day psychiatrist recognizes that while organic physical disease can produce changes in mood, delusions and morbid behavior, it is also true that mental disorders arising without coincident physical disease from faulty personal reactions to the environmental factors, may cause the same abnormal alterations of mood, idea and conduct and at the same time result in symptoms of a purely physical character, such as headaches, neuralgias, gastropathies, paralyses, etc.

It is the study of the development of personality, of the reactions of the personality, healthy and morbid, to the environmental stimuli, of how the mental life can be made most efficient for social activities, how it can be fortified against strain, and finally how it can best be treated when diseased,—these aims represent the scope of psychiatry today.

Such a psychiatry actively cooperates with pedagogy, criminology, and philanthropy, and is of especial use in the case of the young child either in the school or juvenile court. Social service work of a high order is carried on with its help and works toward the reduction of the huge economic losses indicated by the figures given above.

The State Psychiatric Clinic, established in connection with the State University Medical College has been advocated by the National Committee of Mental Hygiene as the agency which above all others is best suited for the spread of the gospel of mental hygiene. Here the medieval superstition and prejudice with reference to mental disorders may finally be broken down. Patients suffering from mental disorders of any kind may voluntarily apply for treatment, an out patient department will cooperate with charitable and reformatory organizations, acute cases of mental disease can be received and treated with the best chances for a speedy recovery, and finally constructive research and educational work can be developed, the latter among the laity as well as in the medical profession. Propaganda in mental hygiene ranks in importance with that in the tuberculosis and cancer campaigns.

There are a number of such clinics in existence now and others are being announced. Iowa has just completed one at Iowa City and Colorado has recently appropriated a huge sum for a psychiatric clinic in connection with her new University Medical college. The Phipps Institute at Johns Hopkins, the Boston Psychopathic hospital, are perhaps the best known. Nebraska needs such an institution badly and appropriation for it should be made in our next legislature.

—G. Alexander Young.

As a layman whose activity was restricted for a time on account of a nervous condition that was caused in childhood by the best intentions of my parents, may I not add a plea for the Psychiatric Clinic?

On account of my own condition I have put in a great deal of time studying human behavior. And from my layman's viewpoint and without special training I can recognize in many of my friends and acquaintances symptoms of a conditioning that is now or will sometime cause them unnecessary unhappiness and suffering. And if you doctors and the student doctors who are to follow you, will only inform yourselves to the extent that you may recognize the symptoms you will save many of us from much suffering, and you will keep many families from divorce courts and you will spread the propaganda of mental hygiene because you will see everywhere about you conditions which are now hidden from you which will demand your attention. And this isn't just another new fad as I heard a really quite prominent surgeon remark. I have been through the mill and I know what I am talking about. I know of no one thing more important for the State of Nebraska from every angle, than a Psychiatric Clinic established in connection with the State University Medical School.

—G. H.

GRAHAM-STEELL MURMUR

At the midwinter meeting of the Elkhorn Valley Medical Society, held at Fremont, January 19, 1922, Dr. Frederick Tice of Chicago read a very interesting paper on the Graham-Steell murmur.

The doctor quoted extensively from the original paper of Graham-Steell in which he described the occurrence of a peculiar diastolic murmur in three cases. Post-mortem examinations of these cases failed to reveal the exact cause of the murmurs.

The typical Graham-Steell murmur is a soft diastolic murmur, occurring typically over the sternal ends of the left third and fourth ribs. Peripheral signs of aortic insufficiency are absent, and the murmur is usually coincident with the signs of mitral stenosis.

The most likely explanation of the murmur is high pressure in the pulmonary artery; in fact, it is often called "the murmur of high pressure in the pulmonary artery."

Dr. Tice reported the incidence of this murmur in twenty-six cases of mitral stenosis at approximately fifty per cent. In connection with these cases he took occasion to graphically illustrate the three types of murmur commonly heard at the apex in mitral stenosis, namely, the pure presystolic, the diastolic-presystolic, and the pure diastolic. One or all of these may be heard in the same patient at various times.

—G. W. Covey.

IODIN.

Iodin is a well known therapeutic agent and is recognized by the physician as a local, as well as a constitutional remedy. We have recognized its worth as a therapeutic agent in bronchitis, laryngitis, bronchial asthma, particularly in patients who are deficient in the secretion of the thyroid gland.

It is given in three drop doses of the tincture in a half glass of water after meals, and increased one drop each day until some symptom, as headache, running of the nose, or watering of the eyes indicates that the therapeutic effect has been reached; then dropping back to three drops again, starting as before and taking in increasing doses to tolerance of the drug.

Now comes a French physician, Boudreau, who by intensive iodin treatment in tuberculosis and some other infectious conditions, recommends it as a curative remedy.

We quote the paragraph as given in Current Medical Literature of the A. M. A. Journal: "Boudreau has been treating tuberculosis with iodin for seventeen years, but did not publish his experiences until 1914. He is convinced that iodin is the direct, specific and heroic remedy for this disease, and that it should be given to the limits of tolerance. He adds that not only in tuberculosis but in all infectious diseases, iodin is the most harmless internal disinfectant at our disposal, with the maximum of action and ease of administration. The iodin is given in the form of the tincture added to the milk, wine, teas or other fluids taken during the day. Some of his patients, cured now for ten to seventeen years, had taken up to 400 drops of the tincture of iodin during the day, and these doses have been doubled and tripled in cases cured since 1914 as he gained confidence, he says, in absolute harmlessness of this medication. It has been applied by Bonnefoy of Geneva in malaria, by some London physicians in chronic rheumatism, by Italians in cholera, by Manuell of Mexico in tuberculosis, and by Filliol and others in France. The French tincture of iodin is practically the same strength as that of the U. S. Pharmacopeia. —W. D. Shields.

LIFE TENACITY OF THE GONOCOCCUS.

(From U. S. P. H. S.)

The medical profession is practically agreed that the life tenacity of the gonococcus is unusual. In fact there are those who believe that a gonorrhea, involving the entire male urethral tract becoming chronic, can never be said to be thoroughly cured, even though there be no clinical or laboratory manifestations of disease due to the gonococcus.

Male patients, afflicted with gonorrhea, are told by their physicians when symptoms disappear, that they are cured. Relying upon such statements, they marry without thought that they can contaminate their mates. This proves largely to be true. However there are unfortunately many, many instances in which such is not the case. A large percentage of gynecologic operative work is due to situations arising as follows:

The male has had a gonorrhea. He has been declared cured by his physician. Subsequently, he marries. In time his wife gives birth to a child and is free of all disease. The physiologic act of childbirth is accompanied by an increased blood supply to the participating tissues. This haemic turgescence does not cease until weeks after the child is born. If the husband has connection with his wife previous to the time when the mother's genital parts have returned to normal and there be any latent gonococci in his genitals at that time, they will find lodgment in the mother, and what was theretofore a dormant, non-specific germ, generates into an active, infective bacteria which produces acute gonorrhea in the genitals of the female. The symptoms thus arising are not promptly recognized because the consequent "soreness" seems natural after the disturbance to the parts following childbirth, coupled with the first act of copulation thereafter. When, subsequently, the existence of a pathologic condition is recognized, it is ordinarily attributed to an infection of another character and thus the gonococci travel through all of the channels of the female organs of generation until, ultimately the situation is such that the surgeon must wield his knife, frequently to render the patient sexless. The spark develops into a flame and the consequent conflagration is calamitous. The above is a correct picture of what is happening day in and day out, the world over.

The following suggestions seem pertinent in this connection:

(1). Every man and every woman about to marry, should be warned of the dangers likely to come to the latter. If they indulge in intercourse within eight weeks after the mother has given birth to a child, provided the husband has ever had gonorrhea.

(2). The parents of children of marriageable age should be advised on this score.

(3). Medical teachers should instruct medical students in keeping with this knowledge.

(4). Social service workers, nurses and midwives should be similarly advised.

(5). Gynecologists should prepare reading matter for medical journals bearing upon the facts involved as there are many practitioners of medicine who are unfamiliar with them. Such articles should be amplified by research data.

If the premises above stated be correct, and I am satisfied that they are, the medical profession should take early and effective steps to prevent repetitions of these pathologic disasters. We are combing the realm of science to recognize and to remove causes of diseases, many phases of which are as dark as Erebus. Here is a known field that is filled with horrors that can be eliminated.

Why not an educational propaganda to minimize if not ultimately to exterminate the evils following in its train? —M. J. L.

THE DOCTORS VOTE ON LIQUOR.

As a result of a questionaire sent out by the Journal of the A. M. A. to 870 Nebraska physicians, 565, or 65% replied as follows: "Is whisky a necessary therapeutic agent?" Answered, yes, 272; no, 291. "Is beer a necessary therapeutic agent?" Answered, yes, 165; no, 394. "Is wine a necessary therapeutic agent?" Answered, yes, 162; no, 391. To the question, "Should physicians be restricted in prescribing alcoholic beverages?" the vote was yes, 340; no, 196.

This probably fairly represents the sentiment of the profession of the state.

A TUBERCULOSIS SURVEY AMONG INDIANS.

The survey of tuberculosis among the Nebraska Winnebago commented on in the November, 1920, Journal, made at the instance of the Nebraska Tuberculosis Association was a most important step (the first of the kind ever undertaken). The National Association, which largely financed this survey, in recognition of this work has appointed a committee on tuberculosis among the Indians to follow up the work so well begun and possibly to move the bureau of Indian affairs to the point where it will really take some interest in Indian affairs.

The Bellevue School for Disabled Veterans has been opened in the plant formerly occupied by Bellevue college, adjoining Ft. Crook.

METRICAL MONOGRAPHS.

II. Leukopenia.

My leucocytes are leaving me,
    Ah, sad, Ah sorry day!
Of my defense bereaving me;
    And soon I'll be the prey
Of any old bacterium that happens on my way.

My bodyguard of yeomen true
    Has gone and left me flat.
One measly little sniff of flue
    Will quickly land me at
The place where every pall-bearer takes off his high silk hat.

I sympathize with that old guy
    Who cried, mid thickest fight:—
"My kingdom for a horse!" But I,
    Worse off than that old knight,
Cry: "All the seven kingdoms for an extra lymphocyte!"

I had four thousand whites today,
    Tomorrow maybe three.
When I get to two thousand, pray
    Then where'n— —I be?
In a long cold pine box with strangers shoveling dirt on me.

For what can I, defenseless do
    'Gainst fifty billion foes?
Shoot me a grain of morph or two
    And I'll turn up my toes
To green germless eternity beyond the aseptic snows.

—Sanford R. Gifford.

ABSTRACT

TREATMENT OF SHOCK BY INTRA-SPINAL INJECTION OF CAMPHORATED OIL.

By Jacques Le Grand (de Rouen). From "Journal de Medicine de Paris."

(Translated and Abstracted by Dr. J. E. Summers, Omaha).

The good effects of camphorated oil against shock are now well known. After having employed it first in subcutaneous injections of larger and larger size, exceeding very much what was believed to be toxic, I thought of the intravenous method.

The researches of Le Moignic and Gautrelet whose results were presented to the Academy of Sciences by Richet, in February 1918, showed that one could inject as much as two cubic centimetres of oil per kilo (weight) of the animal, without causing accidents of fatty embolisms.

Heitz-Boyer brought to the tribune of the Society of Surgery, about the same time, a series of successful cases of intravenous injection of camphorated oil, and praised this method as an heroic remedy against shock. We ourselves had at the same time as Heitz-Boyer, made experiments upon animals proving the innocuity of the injection done with care, and in patients we had been able to inject, in certain cases, more than 5 cc. of camphorated oil with excellent results.

But this method seemed to us not without danger, and it necessitated minute precaution. The injection must be forced in very slowly; the quantity injected must not exceed five or six cc.; finally it was necessary to have an oil strictly neutral, lacking any rancid product, and very fluid (thin or easily flowing).

This mode of introduction was justified by an impressive argument—the camphor, a heart tonic, was thus carried directly to the heart and acted then upon the myocardium.

We do not know if this method, since employed by numerous physicians, has ever had a death from fatty embolism: On our part we have never seen one. Certain surgeons have told us of having seen slight fleeting attacks of dyspnea following the injection. They might be attributed to slight embolisms.

On the whole the method is very interesting but not exempt from danger,—the intravenous injection of oil seems so to us.

In April 1918 we had occasion in a patient suffering from a fracture of the skull to do a lumbar puncture. He had numerous other wounds and was in a condition of extreme shock. We had the idea of injection of camphorated oil by a needle into the spinal fluid.

We were astonished to note the immediate effects comparable with those obtained by the intravenous injection—almost immediate relief of the pulse and arterial tension, rapid palliation of the phenomena of shock and disappearance in a little while of the phenomena of unconsciousness.

Since that time we have done the intraspinal injection upon numerous patients either war wounded with shock, or shocked after operation, always with equal success without ever having accidents attributable to this practice.

To our mind this question gives rise to a certain number of physiologic problems, some very obscure, others upon which we have already put much thought.

And first, "Where does the injected oil go?"

Theortically, one can forsee that its difference of density from that of the cerebrospinal fluid will make it rise towards the brain. Of this fact we have had anatomic confirmation.

In the case of an infant having suffered from intestinal invagination for three days and operated upon in a condition which left scarcely any hope, a resection of the sphacelated bowel was necessary. At the end of the intervention the pulse was miserable, respiration scarcely perceptible, the extremities cold. An intraspinal injection of camphorated oil of 10 cc. was done. Relief of the pulse was immediate, respiration was restored, the child became warm and rapidly regained consciousness.

It died, nevertheless, on the following day. At the autopsy upon opening the skull a strong odor of camphor issued forth. The duramater being incised there was found all about the cerebrum and the cerebellum a covering of tiny oil droplets, collected the most of them at the base in the arachanoid space, and the least quantity upon the convexity of the hemispheres.

The action of camphor intraspinally has immediate effects and prolonged secondary effects.

The immediate effects are analogous to those which one observes after intravenous injection.

The same rapid relief of the pulse and arterial tension, a whipping-up with a tendency to weaken afterwards. There is a very clear effect upon the respiration, of which the amplitude increases following the injection.

But we observed in addition one most interesting phenomenon which we have not seen in the other method,—the disappearance in a little while of the intellectual confusion of the shocked or anesthetised patient.

The observation of one of our recently operated patients has been most remarkable from this point of view. After a difficult gastrectomy and a long general anesthesia his condition was most precarious. An injection of 6 cc. of camphorated oil intraspinally was made. We saw the usual good effects upon the pulse, the respiration, the warming-up. Then within the following hour he regained consciousness, with a great sang froid inquired about his family, requested that we telephone in order to reassure them, and, remained afterwards in an entirely clear state of mind.

Besides these immediate effects there are prolonged secondary effects which throw light upon the mechanism of the action of camphor. The rapid return of consciousness is followed by slight phenomena of cerebral excitation, and of slightly accentuated disturbances in the rhythm of the pulse and respiration. The irregularity of the pulse for two or three days is quite characteristic: Quite forcible, it has irregular phases of acceleration and slowing-up. It is the same with the respiration to a lesser degree.

In the light of these facts, we feel that it is permissable to set forth a hypothesis as to the manner of action of camphor thus introduced into the body. The elective heart-tonic action upon the myocardium seems to us to be outside of the question: The relief of the pulse is so rapid that it seems difficult to admit of an instant passage into the general circulation.

We believe rather, that it is a matter of nerve action. The camphor acts upon the medullary bulb centres in an intense, prolonged fashion.

This action continues until the camphor has been completely eliminated from the cerebrospinal fluid. These effects are then very different from those induced by the momentary whipping-up from the intravenous injection.

From a technical point of view we will not insist upon the classic lumbar puncture in the place of election between the fourth and fifth lumbar, vertebral, a puncture often more easy to make than a venous puncture in a collapsed vein only slightly apparent.

In case of normal pressure of the cerebrospinal fluid we took from it an equal quantity to that of the injection. In case of under-pressure it seemed best to us to draw out nothing.

The quantity of oil to inject is variable. The maximum seems to us to be 10 cc. injected slowly with the patient lying upon his side.

To summarize, the cases that we have observed are now so numerous as to permit us to affirm that this manner of administration of camphor seems to us devoid of dangers and that it presents numerous advantages in certain cases, and especially in surgical practice.

ABSTRACT.
THE OBJECTIVES OF MEDICINE.

(From the address of Dr. Frank Billings, Chicago, before the annual meeting of the Omaha-Douglas County Medical Society, Dec. 13th, 1921, University Club, Omaha, Neb., by Dr. Howard L. Updegraff, Omaha.)

The fundamental objective of the medical profession is the alleviation of suffering and the prolongation of life. This has been the golden thread since the beginning of medicine. It has been interrupted but never broken. There is more interruption now by cults than in any other age.

The foundations of medicine of today were laid in medieval times and we are too prone to be satisfied with present day methods and forget to look back into history. In the colonial days medical men were qualified by education in the old country, and our schools were based on old world schools. Later individuals organized their own medical schools.

The Americal Medical Association was founded in 1847 to improve the standard of medical education. At that time it was of relatively small importance and it, as well as its founder, N. S. Davis, was condemned by such men as the Dean of the New York Medical College. However, in spite of its poor finances, it was reorganized in 1901, and in 1903 a Committee on Medical Education was appointed and was successful to such a degree that a number of medical colleges and hospitals have been proved and disproved and the number of graduates in medicine has steadily declined each year as the standards rose.

The attitude of the public in health matters has shown an increasing response noticeable by the willingness to accept any statement by the health authorities as shown by vaccination and inoculation measures instituted in late years. While we have only 150,000 practitioners to 107,000,000 of people yet if properly distributed these would be enough. The attitude of the medical mind toward social problems, however, has not kept pace with economic changes. In 1900 W. W. Keen, president of the American Medical Association stated that medicine received less endowment than any other branch, viz $1,000,000. This condition has been improved until today it has grown to a hundred million.

Medical education has improved under the American Medical Association through such means as state boards and endowment to the point where no one mind can grasp it all and consequently many enter the specialities. General practitioners have decreased in number. During the recent war the Surgeon General's office attempted to divide and subdivide the specialities until there were so many parts as to cause a resultant confusion.

The schools of today are for the most part dominated by teachers who attempt to turn out specialists of their own type and not doctors versed on the broad general principles viewing their patient as a human being. As a result of specialism the city is overcrowded and the country sparsely settled. The city man does not care to abandon his foothold and take up the real worth while thing in medicine i. e., a family practice.

The standardization of entrance requirements tends to make machine molds. The science courses should be for the election of medicine instead of pure science and should be applied science to medicine. The student should know the fundamentals well enough to know a normal man. He should understand first the normal, then the abnormal. More time should be spent on the principles of surgery, therapy, etc. Physical therapy is today an untaught science and as a result patients go to the osteopath and the chiropractor. We have neglected the useful phase of reconstruction in convalescence. If properly employed physical therapy would bring the average patient out 20% sooner.

The medical student should be better grounded in diagnosis through the simplest methods. The electrocardiograph and polygraph are not a great help in practical every day work. The elaborate tests taught in the schools do not bear out in every day work as it would take both a clinical and laboratory expert to do them. Yet by simple measures the average man can determine approximately the same results. So teach these to the student. We must exert a moral force to bring the heads of medical schools into line to turn out general qualified men.

Fifty-two percent of our population lives in the cities. The country practitioner due to isolation is more or less apathetic and feels behind the times. So he utilizes his own instruments—his own brain and his special senses. How much time and careful examination he gives his so-called hard cases during his busy every day routine may be known by the fact that careful office records kept by me for the last five years show that 75% of the cases referred to me by country practitioners have never been stripped for a physical examination. This includes over 500 doctor's families.

Group practice has eliminated the big all around man. There is too much referred work. Every doctor ought to be able to make a complete diagnosis himself of 80% of his cases. In group medicine each man must function or it will fail. The pay clinic is a coming feature in medicine. It is both for the poor or as at Cornell for those who can pay. Both group medicine and the pay clinic, however, must have the cooperation of the general practitioner as the general home and suburban population make up the real sentiment of the country which is reflected in the general practitioner. So the group and pay clinic must also help the general man.

State medicine means the State Board of Health which incidentally is the only kind of State medicine that will ever exist in this country. It will and does advance general rules of hygiene, such as proper care of streams and sewage; inspection of school children; registry of births and deaths. The domiciliary visitation by the family physician is the greatest stand for state medicine.

State Health Insurance is the red rag before the medical bull. It will not happen in the United States as is shown by experience in foreign countries. It must not however be confused with voluntary health insurance.

A constructive program for the objectives of medicine should now be constructed by those individualistic in medical things and not subject to leadership. It should embrace those elements that will make a medical education an aid to the country doctor. It should provide a plan for hospitals for communities which themselves will raise the money. These hospitals should be open to ethical doctors and should be an aid in diagnosis and treatment. They will not fall into political hands if the doctors will take it upon themselves to exercise control.

It should be our aim to medicinize the social world instead of allowing the socialization of medicine—which if it is continued as at present under the various welfare societies and boards may be pernicious.

PROGRAM MEETING AMERICAN COLLEGE OF SURGEONS, NEBRASKA, IOWA AND SOUTH DAKOTA SECTIONS.

Lincoln, Neb., Monday, Feb. 6, 1922.

9 A. M. to 12 Noon—Clinics and Clinical Demonstrations at St. Elizabeth's Hospital, Orthopedic Hospital, Lincoln Sanitarium.

2 P. M.—Hospital Conference, Temple Theater, Twelfth and R streets. A. R. Mitchell, M. D., Chairman, presiding.

"The Hospital Program of the American College of Surgeons," Franklin H. Martin, M. D., Director-General American College of Surgeons.

"The Work of the Hospital Surveyor," T. E. Allen, American College of Surgeons.

"Hospital Standardization from the Surgeon's Standpoint," George W. Crile, M. D., Cleveland.

"Hospital Standardization from the Standpoint of the Hospital Executive," Irving S. Cutter, M. D., Dean of the College of Medicine, University of Nebraska.

"The Soul of Hospital Standardization," Rev. C. B. Moulinier, S. J., president of the Catholic Hospital Association.

6 P. M.—Banquet to Fellows, Wives and Guests at the Chamber of Commerce.

Public Meeting—Monday, Feb. 6, 1922; 8 P. M. City Auditorium.

Introduction by the Chairman, Dr. A. R. Mitchell.

Address of Welcome: Dr. B. F. Bailey, President Lincoln Chamber of Commerce.

"The Program of the American College of Surgeons," Dr. Franklin H. Martin, Director-General, American College of Surgeons.

"Experimental Medicine," Dr. George W. Crile, Professor of Surgery, Western Reserve University School of Medicine.

"A Layman's Interest in the American College of Surgeons," R. I. Raymond, Representative American College of Surgeons.

"The Community's Interest in Hospitals," Rev. C. B. Moulinier, S. J., President Catholic Hospital Association.

Discussion by local Fellows.

Program—Tuesday, Feb. 7, 1922.

8 A. M. to 12 Noon. Clinics and Clinical Demonstrations at St. Elizabeth's Hospital, Orthopedic Hospital, Lincoln Sanitarium.

2 P. M.: Scientific Session, Temple Theater, Dr. A. R. Mitchell, Chairman, presiding.

Subject to be announced later. Lee Wallace Dean, M. D., Iowa City.

Subject to be announced later. Donald Macrae, M. D., Council Bluffs.

Subject to be announced later. Fellow A. C. S., South Dakota.

Subject to be announced later. Fellow A. C. S., South Dakota.

Recess.

Annual meeting of the Fellows of Nebraska, Iowa and South Dakota Sections of the American College of Surgeons.

THE SOCIETIES.

The **Platte County Medical Society** at the annual meeting elected the following officers: President, Dr. D. T. Martyn, Jr., Columbus; secretary-treasurer, Dr. C. D. Evans, Jr., Columbus; delegate, Dr. A. A. Bald, Platte Center.

The **Dodge County Medical Society**, at a meeting attended by twenty members and four visiting physicians, Dec. 15, discussed an excellent program, and elected the following officers for the ensuing year: Dr. A. E. Hoff, North Bend, president; Dr. Grant Reeder, secretary-treasurer.

The **Saline County Medical Society** elected as officers for 1922 the following: Dr. Porter F. Dodson, Wilbur, president; Dr. H. W. Quirk, Crete, secretary-treasurer; delegate, Dr. W. H. Pallett. "Rural Health Centers" was discussed.

Resolutions expressing sincere gratitude and appreciation of the $100,000 bequest made by the late R. E. Moore, to the city hospital, were passed by the **Lancaster County Medical Society**, at a meeting held Dec. 17. The following officers were elected for the current year: President, Dr. George W. Covey; secretary, Dr. D. D. Sanderson.

The annual meeting of the **Johnson County Medical Society**, Tecumseh, Dec. 14, featured educational films. Thirty visiting physicians attended from towns in surrounding counties. Dr. J. M. Curtis, Tecumseh, was elected president; Dr. Dora Judkins-Davies, Tecumseh, secretary-treasurer. There were afternoon and evening sessions and this meeting is said to have been the best ever held in the county.

The **Gage County Medical Society**, Dec. 13, elected Dr. A. H. Felch, president; Dr. C. J. Reilly, secretary-treasurer, and Dr. C. S. Curry, delegate.

The **Kearney County Medical Society** met at Axtell, Jan. 11, elected Dr. W. H. Powell, Minden, president; Dr. F. A. Wells, Axtell, secretary-treasurer and delegate, and "discussed" an "oyster feed" at the Axtell Cafe.

At the annual meeting of the **Saunders County Medical Society**, the following officers were elected for 1922: President, Dr. F. T. Wright, Ceresco; secretary, Dr. Frank Tornholm, Wahoo; treasurer, Dr. A. S. von Mansfelde, Ashland.

The **Phelps County Medical Society** has introduced a novelty in that at the annual meetings some doctor-member and his wife are hosts at a banquet given to the membership; in the case of the annual meeting January 4, at Holdrege, Dr. and Mrs. K. P. Palmer were hosts. Dr. Rachael Long, Holdrege, was elected president for the current year.

The **North Platte Valley Medical Society**, Dec. 28, at Scottsbluff, in annual meeting assembled elected Dr. A. L. Cooper, Morrill, president and Dr. W. C. Harvey, Gering, secretary-treasurer.

At a meeting of the **Box Butte County Medical Society**, at Alliance, Dr. Minor Morris, Alliance was elected, president, Dr. E. J. Baskin, Alliance, secretary-treasurer, and Dr. C. E. Slagle and Dr. B. F. Schoch, Alliance, delegates. Dr. F. B. Young, Gering, read a paper.

The **Elkhorn Valley Medical Society** met at Fremont, January 19. Fifty physicians attended. Dr. W. J. Davies, Fremont was elected president; Dr. Andrew Harvey was re-elected secretary-treasurer; Dr. H. H. Heine, Hooper, and Dr. D. T. Martyn, Jr., Columbus, vice president. Tentative plans were made for a joint meeting with the **Fourth Councilor District Medical Society** during the summer at Norfolk. Following was the program:

"Cause and Recognition of Cardiac Decompensation," Dr. W. N. Anderson, Omaha; "Glucose in Shock," Dr. Warren Thompson, Omaha; "Medical Consideration of the Thyroid," Dr. Geo. Covey, Lincoln; "The Surgical Dressing of Closed Infections," Dr. Delmer L. Davis, Omaha; "Puerperal Sepsis," Dr. R. T. Van Metre, Fremont; "Consideration of the Stomach and Its Diseases, Surgical," Dr. C. A. Roeder, Omaha; "The Graham-Steele Murmur," Dr. Frederick Tice, Chicago.

The **Ophthalmic Section of the St. Louis Medical Society** announces a course of lectures in Ophthalmology, to be given in St. Louis by Professor Ernst Fuchs of Vienna during the month of February 1922. Further information regarding this course may be obtained by writing to the Fuchs Lecture Committee, St. Louis Medical Society, 3525 Pine St., St. Louis, Mo.

NOTES ABOUT THE DOCTOR.

Dr. C. A. Graham is a new physician at Bloomington.

Dr. F. J. Kotlar, West Point, lost his appendix recently.

Dr. O. H. Margaret, Papillion, has become county physician of Sarpy county.

Dr. Kenneth Murchison, formerly of Griswold, Iowa, has located at Sidney.

Dr. C. L. Hooper has abandoned practice at Lewellen to take a post graduate course.

Dr. W. M. Jones, Beatrice, is about to move to Texas to engage in a business venture.

Dr. E. E. Griggs, Scottsbluff, was elected commander of the local American Legion post.

Dr. and Mrs. A. J. Coats, Lincoln, gave a dinner to the hundred newsboys the first of the year.

Dr. L. G. Penner formerly of Plymouth, has become associated with his brother, L. E. Penner, Beatrice.

Dr. A. T. Roberston, recently of Ft. Washakie, Wyo., has located at DuBois, succeeding Dr. Chas. G. Zimmerer.

Dr. and Mrs. Clayton Andrews of the Mayo Clinic, Rochester, Minn., visited their parents at St. Paul, Neb., during the holidays.

Dr. F. A. Lemar, Humphrey, was elected vice president, of the Nebraska Reserve Corps Officer's Association, recently at Omaha.

Dr. Claude Wills, who before entering the service during the world war, was a practitioner at Anselmo, has located at Casper, Wyoming.

"The Surgical Clinic of Drs. A. I. MacKinnon, Czar C. Johnson and Carl H. Bastron," Lincoln, is the way it reads since the first of the year.

Dr. W. T. Sloan has moved from Pine Bluff, Wyo., to engage in practice at Potter. Formerly, for a number of years, he was a practitioner at Adams, Neb.

Dr. Perry Allerton, a recent graduate of the University of Nebraska college of medicine, has taken a position in the Santo Tomas hospital, Ancon, Canal Zone.

Dr. James C. Tucker, formerly of Omaha, has moved to Beatrice, where he is in charge of the eye, ear, nose and throat department of the Hepperlen Clinic.

Dr. E. B. Erskine, Lyons, has accepted an appointment as acting assistant surgeon in the army medical corps and will be stationed at a hospital at Lafayette, Indiana.

Dr. Victor E. Levine, professor of biological chemistry and nutrition at the Creighton medical college, recently gave lectures at Yale and Johns Hopkins on research work pertaining to vitamines.

Dr. Caroline Hedger, Chicago, who was sent by the Chicago, Woman's Club to Belgium during the war to help in the fight against typhoid fever, talked before the organized agriculture meetings at Lincoln on child welfare.

Dr. William Emerson, Boston, Prof. Pediatrics Tufts medical school, gave several lectures on malnutrition in children before audiences in Lincoln Jan. 8. The principal address was given before the Lancaster county medical society.

HYMENEAL.

Dr. O. C. Hopper and Mrs. Jeanne Jacques, Stanton, were married Dec. 12.

Dr. E. P. Miller, Gibbon and Miss Myrl Rodgers, Red Oak, Iowa were married at the latter place, Dec. 19.

Dr. Harry D. Webster, Doniphan, and Miss Pauline Weirick, Denver were married at the latter place December 29.

The marriage of Dr. Charles B. Edwards, Overton, and Miss Lillian Arndt, Lincoln, during the holidays, is announced.

NECROLOGICAL.

Dr. Frederick Dalrymple, Lincoln, a pioneer Nebraska physician, whose later active years were spent at University Place, died Dec. 19.

Dr. James H. Mackey, Houston, Tex., an early day practitioner at Madison and Norfolk, sometime editor of a homeopathic medical journal published at Omaha, superintendent of the Norfolk State Hospital 1896-7, died early in January.

Dr. J. B. Conaway, Rush medical college, 1888, a practitioner at York since 1889, died January 12, after an illness of several years, aged about 82. He was a veteran of the civil war, a representative in the legislature of 1895, and state senator in 1897.

BOOKS RECEIVED.

The Glands Regulating Personality. A Study of the Glands of Internal Secretion in Relation to the Types of Human Nature. By Louis Berman, M. D. Cloth. Pp. 300. The MacMillan Company, New York: 1921.

The Life of Jacob Henie. By Victor Robinson, M. D. Cardboard. Pp. 117, with illustrations. Price $3.00, postpaid. The first biography in the English language of one of the makers of modern medicine. Medical Life Company, New York: 1921.

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A REVIEW OF TWO THOUSAND CONSECUTIVE CONFINEMENTS*

Franklin Schaufelberger, B. Sc., M. D., Hastings, Nebraska

In reviewing this series of 2,000 consecutive confinements, I shall endeavor to present a few statistics and observations, representing my personal experience in the practice of obstetrics here in Nebraska. The place of delivery has ranged from the best hospital environment with a trained corps of assistants, down through good homes with good nurses, to the lowest and dirtiest surroundings that could well be imagined. Although I have attended a number of confinements prior to the beginning of this series, my records of those cases have, in many instances, been too meagre for statistical purposes. Therefore, I shall limit this series to cases occurring in my private practice during the past fifteen years and closing with the year 1920. It does not include abortions, nor premature deliveries earlier than six months gestation, unless the baby was living when born. In a few instances I have included macerated infants of earlier gestation that have been delivered a full six months or more after impregnation.

Of these 2,000 confinements, 2,032 babies were born; there being 32 pairs of twins delivered. Of this number, there were 1,045 males and 987 females; thus showing about the normal preponderance of males over females, namely, 106 males to 100 females.

Of the 2,000 confinements, 624 were primiparae and 1,376 multip-arae, the relative number in each parturition after the first, rapidly diminishing in about a geometrical proportion, down to one in her seventeenth confinement.

In regard to presentation, I find that of the 2,032 deliveries, 1,935 were vertex, 69 breech, 14 face, 11 shoulder and 3 brow, thus showing the usual preponderance of vertex presentations. Approximately, one of each 30 deliveries was a breech presentation, and one of each 145 was a face, and one of each 185 was a shoulder, and one of each 677 was a true brow presentation.

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*Read at Tenth Councilor District Meeting, Hastings, Nov. 10, 1921.

Normal delivery occurred 1,586 times, or in 78%, and instruments were used 388 times, or in 19% of all deliveries. Of these instrumental deliveries 64 were high application, 149 mid-strait and 175 at the perineum. This shows an unusually large percentage of instrumental deliveries. My answer is that 31% of the cases here reviewed were primigravidae, of which 42% were instrumental and instruments were used in only 8 2-3% of the multigravidae. It has been my practice to use instruments rarely before complete dilation has been secured and then use them freely in the interests of both mother and baby. A marked slowing of the fetal heart tones have always been a positive indication for forceps and in a great many cases, instruments have been applied for this reason. One also has better control of the delivery and I find that I have fewer and less serious lacerations with forceps than without.

In 1,563 or 78% of all confinements, no laceration whatever occurred. Very slight laceration which required no attention occurred in 161 cases. There were 223 1st. degree, 45 2nd. degree, and 8 3rd. degree lacerations. All but one 3rd. degree and 67% of all other lacerations occurred in primigravidae. In 52.5% of all primigravidae, no lacerations occurred.

Wherever practicable, I have advised the use of an anesthetic, and as a matter of choice, prefer chloroform, although in a number of cases I have used ether. I find that I used more or less anesthetic in 83% of all cases; less than 10% refusing, and in the remainder, I had no opportunity to administer an anesthetic, either arriving after the baby was born, or too late to give it. Of the 1,686 cases where an anesthetic was used, 82% were complete anesthesia, 9.25% nearly complete (having just a faint recollection of delivery) and 8.75% were partial. Wherever possible, I endeavor to get complete anesthesia at the moment of delivery in order to increase the relaxation of the perineum and reduce the chances of serious laceration.

Infant Mortality—Under this head I shall consider only those babies who were either stillborn or lived less than one month. In my series of 2,032 deliveries, I find that 1,871 lived more than 30 days, leaving a total infant mortality, including stillbirths and premature deliveries, of 161 or 7.92% of the total deliveries. Of this number, 58 were stillborn, 51 were premature deliveries, and 10 were nonviable miscarriages between twenty-two and twenty-seven weeks gestation, caused by placenta previa, congenital deformity, maceration, etc. In order to conform with various authorities, I have counted as stillborn any viable fetus, from 27 weeks of pregnancy to term, in which respiration was not established, whether heart action persisted or not. These 58 stillborn infants represented 2.85% of the total deliveries. As a matter of comparison, I find that at the Sloane Maternity Hospital, New York, there was a total of 4.49% stillbirths in a series of 10,000 deliveries. A further analysis of the 58 stillbirths of more than 27 weeks gestation shows that 21 were macerated, some of which were probably syphilitic, 7 were due to placenta previa, 7 to toxic mother (rheumatism, acute pneumonia, eclamptic state, etc.) and 5 to prolonged labor. There were two each, due to prolapse of cord, crushed with instruments, abruptio placeantae and monstrosities, and one each due to hydrocephalus, hypertrophic cirrhosis of liver, atelectasis and syphilis; one arrested breech, half born and dead when I arrived, and one I delivered after the death of mother, that could not be resuscitated. There were 4 stillbirths, none of which were instrumental, in which the exact cause of death was not determined.

All infants here counted as premature were of less than thirty-six weeks gestation and lived only a few hours each. Deducting the stillbirths and premature deliveries, there remains a total of 42 mature infants that failed to attain the age of thirty days. The causes of these deaths, as nearly as I can determine, were as follows:—Eclampsia neonatorum 11, injuries at birth including cerebral hemorrhage 8, congenital deformity 6, atelectasis 5, umbilical hemorrhage 2, whooping cough 2, bronchopneumonia 1, hypertrophic cirrhosis of liver 1, icterus neonatorum 1, dermatitis exfoliativa 1, undetermined 4.

Maternal Mortality—Embraced within this series of 2,000 confinements have occurred all the maternal deaths in my obstetrical practice. There was one case of acute yellow atrophy of the liver, one of postpartum hemorrhage with complications, one of pulmonary embolism, and three of pueperal infection. I shall briefly outline these six cases.

Acute yellow atrophy of the liver occurred in a case referred to me from Holdrege, Nebr. Tertipara, aged 35, about 7½ months gestation, an ambulance case, suffering from hyperemesis gravidarum, and absolutely unable to retain even a swallow of water. Great prostration. History of similar hyperemesis with both previous pregnancies and loss of baby at first delivery. General condition too critical for immediate interference. Treated with nutrient enemata and Murphy drip, glucose and soda solutions which effected considerable improvement. Spontaneous labor began eight days after admission and I delivered her under light ether anesthesia and with low forceps (to save her exertion) of a premature infant weighing 4 lbs. The baby lived and was removed from the hospital when two weeks old, thus passing from my observation. The mother rallied nicely from her labor, but twelve hours later, developed a raving delirium, followed by coma and death, thirty-eight hours after delivery.

Post-partum hemorrhage and complications:—A tertipara, age 21, 36 weeks gestation. I was called to this case, in a private house, on account of a free flow of blood, probably about a half pint, which had occurred a few hours before. Examination showed a placenta previa centralis. Immediately after the examination, an alarming hemorrhage occurred and since the dilatation was about one third complete, I quickly broke through the placenta and performed a podalic version which effectually tamponed the uterus and controlled the hemorrhage. I now left the case to nature and slow delivery followed with good uterine contraction. The family physician had been called and arrived just as the baby was born, and since everything appeared well, he left soon after and I remained with the patient. About an hour after delivery the patient showed signs of relaxation and further hemorrhage and immediately thereafter passed into a state of acute mania, with violent struggling that prevented effectual tamponade or other means of control of the hemorrhage and she suddenly relaxed and died, 1¾ hours after delivery.

Pulmonary embolism:—A secundipara, age 33, full term, with a history of an infected abortion a year previous. First call at 9:00 A. M., dilatation 2cm, cervix rigid and not absorbed, pains medium, membranes ruptured, position L. O. A. with head just engaging, heart and lungs normal. Apparently the case was progressing normally. I left her temporarily and returned in two hours. I found that she had been vomiting and was then lying across the bed. Her tongue was swollen and her arms and hands exhibited a rather livid hue. While preparing for further examination she had a couple of bearing-down pains. Examination while on her side showed no material advancement. She then turned on her back, suddenly became cyanotic and gasped for breath. I at once administered stimulants hypodermically, but without results and she died in a very few minutes. Without delay, I manually dilated the cervix and applied forceps in hopes of still saving the baby. On account of incomplete engagement and in my hurry, the forceps slipped. I immediately performed a podalic version and extraction but could not resuscitate the baby. No anesthetic had been used and there was no manipulation except a simple digital examination, before the death of the mother. One thing that impressed me was the remarkable facility of dilatation after death, of a previously rigid os, the cervix seeming to offer no resistance whatever to my dilating fingers.

Puerperal infection:—There was three cases of puerperal septicaemia. One, a nonipara, age 40, full term. This patient had always had hard deliveries, nearly all being instrumental, due to a moderately contracted pelvis and very large babies. I had attended her successfully twice before. This time she was in labor for over 24 hours and was finally delivered with high forceps. The baby weighed 9½ lbs. and is now living. Two days after the delivery she developed the usual symptoms of puerperal infection and died on the 15th day of the puerpereum, of a general septicaemia.

Another fatal puerperal infection occurred in a tertipara, age 25, full term and normal delivery, vertex presentation with head at outlet at the time of my arrival. The next day following her delivery, she suffered a chill and high fever, and on the second day after, showed evidence of metastatic infection throughout the body. She died four and a half days after delivery. It was a violent case of puerperal bacteraemia from the start and seemed unamenable to any treatment whatever.

The third puerperal infection was in a multipara, age 43. It was her twelfth confinement and I had successfully delivered her twice before. She had a slight justominor pelvis, of sufficient degree always to prolong her labors and render delivery difficult, although none had been instrumental. This time she had been in poor health prior to conception, and was about to undergo an operation for chronic tubal and ovarian infection when she found that she was pregnant. This labor was further complicated with a placenta previa lateralis, the margin of which could just be felt with the examining finger when dilatation was one third complete. There had been considerable hemorrhage, though not serious, during the early part of the first stage, until engagement effectually tamponed the uterus. Labor, as usual, was slow; she suffered more or less pains for three days before I was called. As soon as dilatation was complete, and on account of rapidly failing fetal heart tones, I decided to deliver with instruments in the interests of the baby. This was easily accomplished and the third stage of labor was normal. The second day after her confinement she suffered a severe chill, with a temperature of 105 degrees and a pulse of 135 per minute. Extreme tenderness in the region of the left ovary. Lochial flow normal color and amount, with no unusual odor. I at once called the surgeon who had treated her before her pregnancy. Examination showed the infection to be external to the uterus though not distinctly localized. The surgeon had her removed to the Nebraska Sanitarium and she passed out of my care. There she ran the usual course of a progressive bacteraemia, with the varying temperature ranging from normal on some days to as high as 106.5 degrees on others. She died from exhaustion in her sixth week after delivery. Strictly speaking, this was not a case of puerperal infection. However, I have included it in this series; thus making my general maternal mortality, one-third of one per cent.

I shall now briefly review a few of the complications and anomalies that were encountered during this series of deliveries.

The anomalies of breech presentation were largely "single breech" with legs extended. This occurred in 20 out of the 69 original breech cases. Five deliveries were complicated with stricture uteri, due to contraction of Bandl's ring, two of which caused considerable delay in delivering the after coming head. There were two cases with prolapsed cords. In another case, delivery of a breech presentation was successfully accomplished through a markedly justominor pelvis, in which the conjugate vera measured only 7½ cm. A Walcher position was used and great force was necessary to effect delivery. The baby weighed 7¼ lbs. and is now living. Aside from four macerated stillbirths and one arrested breech that was dead before I arrived, I always succeeded in resuscitating the babies.

Of the fourteen face presentations, three were delivered normally and one with instruments. Seven were impacted mento-posterior cases and vertex version was performed, followed by instruments. There was one acranial monster, L. M. P., that was delivered without rotation, the absence of a cranium preventing impaction. Podalic version was performed twice; one, a consultation case where the infant had previously been crushed with instruments in an effort to deliver, and in the other case, podalic version was performed on account of prolapse of both hands over face.

Shoulder presentation occurred in eleven of this series of confinements. In nine of these, podalic version was performed, one of which was complicated by placenta previa centralis; a premature infant that was stillborn. In one case I did a cephalic version by external manipulation on account of a placenta previa lateralis. The vertex position was maintained by a sitting posture, with one thigh sharply flexed against the abdomen until engagement was secured. This effectually tamponed the uterus from within and a normal delivery soon followed. In the remaining case, a spontaneous delivery of a premature infant occurred. This one was the second of twins; and while I was busy attempting to resuscitate the first one, a delayed breech, the second one was expelled. The arm prolapsed with the rupture of the membranes and was expelled to the axilla, which engaged across the left pubic ramus, and a few moments later, the head was expelled from under the right ischium and the infant immediately cried lustily. It lived four days and died of eclampsia neonatorum. All others in this group lived, except the stillbirth noted above.

There were three typical brow presentations in this series; one of which, a right fronto posterior position, exhibited a tendency towards spontaneous conversion, by deflexion, to a R. M. P. position. I performed a cephalic version by DeLee's maneuver, securing an L. O. A. engagement. The case was then left to nature and normal delivery occurred. The baby was a full term and weighed 9 lbs.

Another brow presentation occurred in a tertipara, age 25, position L. Fr. A. This was a slow tedious case and the head was so thoroughly impacted that I decided to let it alone, since it was somewhat premature (35 weeks gestation) and probably a small baby. She expelled it normally, face up, The baby weighed 6 lbs. and showed the characteristic moulding of a brow presentation. It died five hours after delivery, probably of cerebral hemorrhage.

Another case was complicated with a general mix-up of presenting parts. First examination through thick cervix of 3cm. dilatation showed both feet presenting with heels pointing right posteriorly. The membranes being intact, I awaited developments and in a few hours the cervix had nearly absorbed and dilatation had advanced to about half complete. I then found a true brow presentation, R. Fr. P. position, with both feet prolapsed, the dorsal surfaces of which lay against the forehead of the baby. She was evidently trying to play both ends against the middle. A few days previously, I had a similar position occur in the second of twins. The first had effectually completed dilatation and cleared the way and I easily pushed up the feet and guided the head into engagement. I decided to try this maneuver again, but when I pushed up the presenting parts, there occurred a free hemorrhage of dark blood, and fearing an abruption of placenta, I quickly changed to a podalic version and delivered by breech extraction. The baby was severely asphyxiated (pallida) but was successfully resuscitated. It weighed 7 lbs. and instead of frontal eminences, there were marked frontal depressions, leaving a marked triangular ridge ascending from the nose up to the anterior fontanelle. This was not due to molding from hard labor, but was a developmental deformity due to the position it had doubtless occupied for several weeks.

Abruptio placenta occurred in fourteen cases, two of which were typical ones, the placenta becoming detached before labor began. It is needless to state that these babies were lost. One was due to a severe paroxysm of hiccoughs in a case of toxemia; and the other occurred in a premature delivery (about 27 weeks gestation) with cause undetermined.

Another case occurred as a complication of a shoulder presentation. Severe hemorrhage revealed the condition, and when I passed my hand into the uterus to perform version, I encountered the placenta entirely detached. I immediately brought down the feet and delivered as quickly as possible, the fetus and placenta all coming together. After nearly an hour's effort, I succeeded in resuscitating the baby and it is now living. In the other eleven cases, the abruption occurred a few minutes before delivery and in each one I was able to resuscitate the baby.

Eclampsia and other toxemias:—Under the heading of toxemias, I have listed ten cases of eclampsia, with from one to eleven convulsions each; and eleven borderline cases without convulsions, although other toxic symptoms were most pronounced. Also three typical cases of hyperemesis gravidarum, all ambulance cases, one of which was described in detail under maternal mortality.

One of the eclampsia cases was complicated with a placenta previa centralis, necessitating dilatation and version under deep anesthesia. She made a good recovery. Another, a primipara, had six convulsions before and five after delivery, the last one occurring 63 hours after the uterus was emptied. This was a severely toxic case and developed an acute yellow atrophy of the liver as a complication. There was no chloroform used; a light ether anesthesia was given for manual dilatation and delivery after the sixth convulsion. Her blood pressure ranged as high as 240 mm. systolic with a diastolic of 125 mm. She made a good recovery. There were no deaths among the ten true eclampsia cases. In addition to the above, there were a large number of cases with albuminuria, ranging from 0.2% to 0.8% albumin by Esbach's test, none of which suffered eclampsia.

There were 29 cases of placenta previa recorded in this series; 16 of which were lateral, 7 marginal and 6 central implantation. Podalic version was performed in one lateral and all of the central placenta previa cases. All other lateral and marginal cases were treated by freeing the tissues within the cervix and rupturing the membranes, thus securing an effectual tamponade from within. A large per cent of the infants were premature and only 16 out of the 30 born, survived.

One of the most frequent complication of labor was post-partem hemorrhage. It would be difficult to properly classify these cases.

for what might be considered as serious under certain conditions, might be of passing concern only in others. As a matter of convenience, I have grouped these cases, where sufficient hemorrhage occurred to demand my attention, into three classes, depending upon the effect on the patient rather than the actual amount of blood lost. There were 18 cases of severe hemorrhage, 29 classified as moderate, and 16 as slight. These were uterine hemorrhages. There were also 6 cases of moderate hemorrhages resulting from torn perineal vessels, making a total of 69, or 3.4% of all confinements. The cause was not always determined, but in the majority of cases, was due to relaxation and general weakness. There were ten cases of delayed post-partem hemorrhage that showed no signs of trouble until an hour or more after delivery.

Puerperal infection—Under this head I have included all cases where a temperature of more than 102° was present; or even a less temperature, if persistent. There were 24 cases in all, or 1.2% of the total confinements. There were three typical septicemias, all of which died. Three of the cases were due to pyelitis, and one was a typical case of phlegmasia alba dolens. The remainder were, transient infections, among which were 8 cases of sapremia, several of which gave a history of anteflexion prior to conception.

I have positive knowledge of syphilis in only four, out of the two thousand confinements. Two terminated in stillborn macerated fetuses. In one case the mother was infected during the last trimester of pregnancy, and the baby was born alive but with the usual stigmata. In the fourth case, both father and mother were infected only a year and a half previous to this delivery, and were treated immediately with salvarsan. On July 1st, 1911, I made a diagnosis of early secondary syphilis in both parents and referred them to a specialist for treatment. A positive Wassermann reaction was found in both instances and both were treated on July 6th. Early in December they were both again examined and the husband gave a positive Wassermann reaction while the wife showed negative. However, they were both again injected. The mother must have been pregnant at that time for on September 5th, 1912 I delivered her of a full term healthy baby. At no time during gestation were there any symptoms of threatened abortion. The baby is now living, nearly nine years old, and has always been perfectly healthy although no antisyphilitic treatment whatever was given. This mother has since born two normal healthy babies.

The morals of this community are pretty good, which is attested by there being only eight illegitimates in this series; and in one of these, a war baby, the parents have since been married.

Anomalies of pelvis, sufficient to cause dystocia, were frequently encountered. Justominor pelvis was listed twenty-two times, five times by one patient, and several times each by other patients. In the absence of records of measurement, this, as well as contracted pelvis which was listed nine times, should be considered only as relative, the dystocia depending upon the size of the baby. There was also one case of marked kyphosis with pendulous abdomen which gave me considerable trouble in delivering, necessitating a very high application of forceps.

There were three cases of bicornate uterus, one of which I confined twice, and both times delivery was premature, the babies living only a few hours. In one case delivery was slightly premature but otherwise normal with living baby. The third one was a full term delivery, although a small baby (6½ lbs.) and was a single breech presentation. This patient had a distinct bicornate uterus with a single os; and a thick fleshy septum about the width of three fingers, extending antero-posteriorly in the vagina, thus forming a double vagina. The gestation occurred in the right cornu. I had previously attended this woman in two incomplete abortions from the left cornu, which was decidedly the smaller of the two and probably accounted for the abortions.

Prolapse of cord occurred eight times. In one case the fetus was dead before my arrival and in another, I lost the baby although version was performed as a last resort, at the earliest possible moment. The other six cases were treated by posture, version, or quick delivery and the babies were all saved.

Of injuries to baby, other than slight bruising from instruments, etc., there were seven cases of cephalhematoma, three of cervico-brachial paralysis, four of Bell's palsy, two of fracture at base of skull, one fracture of the clavicle and one fracture of the humerus. All except the two cases of fracture at the base of the skull, made good recoveries.

Under infant anomalies, I have listed three cases of supernumerary digits and five of club feet. There was one each of double talipes equinus, double pes varus congenitalis, single talipes calcaneo-valgus, and single talipes calcaneous. There were five cases of cleft palate, four of which were complete; and nine cases of harelip. There were two cases of hydrocephalus in stillborn infants, and one case of microcephalus that lived only a few hours. There were five anencephalic monsters and two cases of cephalocele, one from the occipital foramen and the other, a meningocele, from the posterior fontanelle. The latter occurred in a breech delivery and was not caused by the exertions of labor. Spina bifida occurred in three cases, one of which lived four months; and as the opening in the spine gradually closed, the infant developed a secondary hydrocephalus from which it died. There was also one frightfully deformed monster of the mongolian type that presented a complete double cleft palate with probosis, defective ears, no forearms, (the hands articulating at elbows) no thumbs on either hand, practically no legs, only small flattened feet which were flexed up against the buttocks. This baby lived three days and I regret that I was unable to obtain the specimen.

The subject of version has been mentioned several times previously. However, reviewing these cases collectively, I find that I have performed version thirty-five times. There were ten cephalic and twenty-five podalic versions. Of the cephalic versions, seven were from original face presentations, one from shoulder complicated with placenta previa, and two from impacted brow presentations. Of the podalic versions, thirteen were from vertex positions; seven times on account of placenta previa, once for prolapse of cord, and five times for extraction of stillborn infants when forceps would not hold. Podalic version was also performed nine times for the correction of shoulder presentations, twice from face and once from a brow presentation.

In this series of 2,000 confinements, there were 32 twin deliveries. This is approximately one pair of twins in each 62 pregnancies. There were seven pairs of mixed sex, a boy and a girl each; ten pairs of boys and fifteen pairs of girls. In one of these confinements, I delivered a living girl baby who is now six years old and also a foetus papyraceous of about four months gestation. During her pregnancy, the mother of this pair enjoyed excellent health and showed no symptoms whatever of the death of one of her twins. They were homologous twins and that portion of the single placenta to which the foetus papyraceous was attached, was found in a state of fatty degeneration; from which I should conclude that it was disease of the placenta that caused the death of this fetus.

Another curiosity occurred in one of these twin pregnancies. It was a case of unioval twins, in one amnion without a septum between the sacs. This was positively attested by the tangling and knotting together of the two cords about half way between the babies and their placental attachments. The cords were so firmly knotted together that they could not be untied. I did not realize that this was a curiosity and did not save the specimen. I have since learned that there are less than fifty such cases on record.

In this review, I have practically omitted the subject of treatment, confining my remarks to statistics and observations on the more important cases only. There were no cæsarean sections.

RECENT DEVELOPMENTS IN THETREATMENT OF DISEASES OF THE BILIARY TRACT.*

F. A. Brewster, M. D.., Beaver City, Neb.

So rapid have been the recent strides in our knowledge of this common disease that I would not deem it superfluous if we were to have a discussion of this subject at every meeting of this society.

The liver is the largest of all abdominal organs and stands as a buffer between the general circulatory system and the gastrointestinal tract, and on the other hand between the general circulation and the spleen which filters from the blood micro-organisms and toxines that it is unable to destroy, sending them to the liver through the portal circulation for destruction and detoxication.

The liver detoxicates chemical poisons such as phosphorus, arsenic and chloroform, as well as biochemic poisons produced in the system. Its power to regenerate injured cells and form new cells is not equalled by any other organ in the body.

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*Read at the 10th Councilor District meeting, Hastings, Nov. 10, 1921.

It is predicted that research work in the next few years will bring about evidence that hepatic insufficiency leading to inefficient purification of the blood is the cause of many changes in the so-called vital organs as the heart, lungs, kidneys, and nervous system, which ultimately lead to death.

The functions of the liver are (1) defence against invasion of the body by micro-organisms, and detoxication of toxic products brought to the liver from the portal circulation, (2) fat metabolism, (3) protein metabolism, (4) carbohydrate metabolism, (5) bile function.

Next to the appendix there is no condition arising in the pathology of the whole abdomen which is capable of more treachery than the gallbladder inflammations.

It is my observation that the average physician is not referring his cholecystitis cases to the surgeon as promptly as he does his chronic appendix cases, but is content to treat these cases for stomach trouble until complications develop which necessitate surgical intervention as a life saving measure.

It is too often the experience of the surgeon to be called to see a patient who has been treated medically for years and has developed a severe jaundice or gangrene of the gallbladder, with perforation or a severe infection with chills and fever. The most the surgeon can do in these neglected and unfortunate cases, which have also developed secondary degenerative changes in the heart and kidneys, is to drain the gallbladder under a local anesthetic.

This mode of procedure often gives very satisfactory results in cases when it seemed that surgical intervention would be prohibitive on account of the age and debility of the patient.

It is becoming the practice of the internist who is aware of the importance of early surgical intervention, to advise surgery in cases that do not respond to medical treatment within a reasonable length of time. If treatment is delayed, sooner or later complications will develop which greatly increase the surgical mortality. In cholecystectomy, before complications develop, the mortality does not exceed 2%, while in neglected cases, with stones in the common or hepatic ducts with cachexia, jaundice, pancreatitis and often nephritis, the mortality ranges between 5% and 9%.

Cholecystitis is perhaps the most common cause of so-called indigestion, and is certainly the most frequent of the infections with which we have to deal in the upper abdomen.

It is quite conceded that a gallbladder once infected usually remains so in spite of all medical treatment and its only recovery is through cholecystectomy, or by becoming eventually an atrophied, inactive organ.

The well known symptoms of indigestion, fullness after eating, eructations of gas with pain in the epigastrium, or radiating through the right half of the chest toward the scapula or shoulder, sometimes nausea and vomiting, together with tenderness over the gallbladder, are of great value in leading the physician to make diagnosis, also may be the only evidence the surgeon may have that the gallbladder should be removed.

No careful abdominal surgeon today is willing to go on record as to the pathology of a gallbladder by inspection, even with the gallbladder opened, much less by the palpitation of the unopened viscus. Nor will he conclude necessarily that a gallbladder which does not empty by pressure in what seems the normal time, is diseased, and that one which does so empty is not diseased.

Consequently, in a given case, with this syndrome, when the surgeon finds a normal appendix and gastric or duodenal ulcer, the gallbladder should be removed, although there may be no external evidence of disease. In such cases it will be found that there is a streptococcus infection of the walls of the gallbladder with a secondary hepatitis and pancreatitis, which in 90% of cases will clear up by removal of the gallbladder.

By this method we not only get rid of the infected gallbladder, but also drain the biliary and pancreatic system.

The gallbladder, being a pressure bulb to equalize the pressure of bile in the ducts, it is noticed after its removal that the first change to occur is a dilatation of the common and hepatic ducts.

This is followed by a paralysis of Oddi's sphincter at the opening of the common bile duct which allows a free flow of bile and pancreatic juice into the duodenum.

Removal of the gallbladder does not disturb digestion and patients in whom it has been removed for years, show no secondary changes micropscopically, either in the liver or the pancreas.

A gallbladder which has been drained is of no value and only results in a liability to the patient.

Deaver has stated that 65% of the secondary operations are due to failure to remove the gallbladder. In all instances where the age and vitality of the patient will permit, cholecystectomy is the operation of choice.

The so-called medical drainage of the biliary system by means of the duodenal catheter is of interest from a diagnostic standpoint, but I believe the only cases suitable for this treatment are the simple catarrhal cases and these are also amenable to the usual medical treatment.

It is necessary, along with the early medical treatment, to clear up all possible seats of focal infection, inasmuch as it has been demonstrated by Rosenow that the same streptococcus which is found in the gallbladder may also be found in an infected tonsil, or tooth or sinus.

Whenever practical, a cholecystectomy should be completed without drainage. The objections to a drainage tube are many. It is a foreign body in the peritoneal cavity and greatly adds to the patient's discomfort and interferes with convalescence. There is nearly always a discharge due to penetration of bacteria along the tract of the tube, which requires daily dressings, often from two to three weeks. In some instances the infection introduced along the tube has been known to be serious and even fatal. A tube or drain carries away the plastic lymph which normally seals the peritoneum together over the end of the cystic duct, thus causing a leakage of bile after the ligature cuts through the duct, which is usually within forty-eight hours. A tube also is a factor causing postoperative hernia.

There are three indications for drainage; a leak of bile, infection, and hemorrhage. If a gallbladder is gangrenous or severely infected, or if there is a bile leak, or if the peritoneal surface of the gallbladder has loosened from the liver and left a bleeding surface, then we should drain.

The operation should be done with good exposure which is made possible by a right oblique incision extending to the ensiform cartilage.

The surgeon should have a well lighted room, two good assistants, and an experienced anaesthetist. He should then be able to isolate the cystic duct and cut between two clamps about one-fourth inch from the common duct, and separate the gallbladder from below upwards, leaving its peritoneal surface attached to the liver.

The cystic artery is clamped and tied with plain catgut, then two ligatures of plain catgut are carefully applied to the cystic duct and the stump of the duct is then buried with another ligature, of plain catgut.

The surface peritoneum of the gallbladder which was left on the liver is closed with a catgut suture.

Another catgut suture is passed alternately into the right border of the gastrocolic omentum, and the right border of the gastrohepatic omentum, with an occasional catch into the fatty round ligament.

This fatty apron shuts the stomach, pylorus and duodenum off from possible adhesions to the liver.

If the surgeon does not feel certain that he may close without drainage, he may compromise by using a double strand of catgut attached to the edge of the liver, where the fundus of the gallbladder was separated, which is also at the site of the other end of the running catgut ligature which extends up to the stump of the cystic duct. This double catgut is allowed to extend out through the wound, which is closed up tightly around it.

Should there be any retained secretions, it will follow this catgut and an artery clamp can be passed along its course through the abdominal wall.

If by the fourth day the catgut is not required, it is placed under slight tension and cut beneath the skin.

Another method which is suitable in some cases is the submerged drain, as devised by Masson.

It consists of a piece of split rubber tubing long enough to reach within an inch of the stump of the cystic duct into the abdominal wound just through the external facia. A loop of silk worm gut is run through this end of the tubing and extends out through the abdominal incision. At the end of four days, if there is no evidence of retained secretions, the tube can be withdrawn by means of the silk worm gut.

When the gallbladder peritoneum peels off the liver, leaving a bleeding surface, strips of iodoform gauze should be packed against the bleeding surface and over this a piece of split tube extending down to the stump of the cystic duct.

The gauze is removed in forty eight hours and the tube is left for about four days.

The surgical treatment of cholemic cases is characterized by a maximum amount of preparatory treatment, and attention to the conservation of the patient's vitality, and a minimum amount of operating requisite in each case to secure biliary drainage.

The calcium content of the blood should be restored by intravenous injection of calcium chloride, and if, in from three to six hours, the coagulation period is not normal, blood transfusion is indicated. The system should be supplied with water by mouth, proctoclysis and subcutaneous infusions.

Narcotics greatly interfere with the function of liver cells and morphine should be withheld both before and after operating. Local anesthesia, combined if necessary with nitrous oxide, is advisable, inasmuch as chloroform and ether greatly retard the function of the liver, not only during the time it is given, but for a considerable time afterward.

The liver should be kept warm during the operation and after the patient is put to bed, the whole liver area should be kept warm with hot fomentations.

If the gallbladder is distended with bile it can be drained with a short incision under local anesthesia and no attempt should be made to remove the gallbladder. If there are stones in the common duct and a small, contracted gallbladder, the common duct should be opened and such stones removed as are easily dislodged, but no great amount of probing the ducts or searching for stones, is advisable. The gallbladder should not usually be removed.

A catheter is fastened in the common duct with plain number 1 catgut, and a gauze pack is also placed along the tube down to the common duct.

PYLORIC STENOSIS.*

C. R. Spicer, M. D., Hastings, Neb.

Definite knowledge of the syndrome now known as pyloric stenosis dates back about 24 years. In the first edition of Pediatrics, 1896, Rotch did not mention the subject. In '98 Pfoundler wrote "It has by no means been demonstrated that such a disease exists." He then proceeded to argue that the thickening found post mortem in such cases could be demonstrated in the bodies of one-third of the infants dying from all causes, and that it was due to the fixation of the normal phase of the pylorus at the moment of death.

In the same year Finkelstein gave the first accurate description of the clinical picture, including the characteristic vomiting, visible peristalsis, tumor on palpation, etc. Little, if anything of consequence, has been added to the symptomatology noted at that time.

Observance and experience forced Pfoundler to admit that he was dealing with a clinical entity; but as he never saw a death from this cause and as the pathology disappeared in many well defined cases he concluded, and was supported by John Thompson in his views, that the whole phenomenon was due to spasm of the sensory-motor apparatus of the stomach. He contended that operative measures were contraindicated because of the state of inanition usually present.

The opinions of able men have seldom been more evenly divided on a clinical proposition than on the etiology, pathology and treatment of this condition. The weight of opinion at present seems to be that there are both cases of the spasmodic and hypertrophic types and that, in certain instances, a case may begin as spasmodic and the tumor so formed may result in hypertrophy of the circular muscular fibers.

The symptoms of pyloric stenosis are so definite and characteristic, in a frank case, that they are easily recognized. It usually begins between the second and twelfth weeks of life. Of 55 cases seen by Holt 49 were males and 52 were entirely or mostly breast fed.

The child previously normal, to all appearances, and thriving well begins to regurgitate a part of its food. It is not nauseated, it nurses well, the temperature is normal and the bowels regular. It soon vomits all food and water, seems hungry, loses weight rapidly and after nursing, peristaltic waves can be distinctly seen moving from left to right across the abdomen when suddenly, with a gulp, the stomach is emptied. Emesis may not follow every nursing; but later a correspondingly larger amount is brought up.

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*Read at the 10th Councilor District meeting, Hastings, Nov. 10, 1921.

A tumor the size of a small to medium sized olive can usually be felt. The stool is well digested but small.

The condition is to be diagnosed from acute indigestion and central vomiting. There is no error in diet, there is no nausea and the stool is normal in character. The discomfort of indigestion is absent. There is no sign of nervous disturbance nor of increased intracranial pressure.

The treatment has been as varied as the causes assigned. The earlier writers advised sedatives, (bromides) positive galvanism and lavage.

Though surgery has been extensively practiced it now has strong competition for favor in medical and dietary measures. Among the mechanical efforts to relieve the stenosis was divulsion whereby the stomach was invaginated into the stricture and forceful dilatation made.

Gastroenterostomy was in vogue ten years ago; but the mortality from this operation remained high and without ideal after management was prohibitive. I have seen six consecutive cases so operated upon by a very good surgeon, who had extensive experience in operating on children, with a mortality of 100%. A significant fact was that the surgeon insisted on directing the aftermanagement of the cases, including the feeding, of which he knew but little. At the same time another surgeon did four such operations without a death. He worked with a pediatrician who is acknowledged as one of the best infant feeders in Chicago. But this operation has always been open to the criticism of being tedious and accompanied by shock.

In the early nineties Fredet, a French surgeon, devised an operation whereby a longitudinal incision of the pylorus was closed by a transverse line of sutures. The result was that the stricture was immediately relieved and the clinical symptoms disappeared. It was simple and caused little shock. It was not popularized, however, and gastroenterostomy continued the standard operation for several years. Sometime after Fredet's operation (in 1913) Rammstedt, of Munster, prompted —as many think—by Fredet's success, devised the operation which now bears his name. It was introduced into the United States by Downs and is the operation usually done at present.

By this simple method the hypertrophied annular muscular fibers of the pylorous are divided down to the mucosa. The stricture immediately disappears, there is little hemorrhage and the symptoms are relieved with the least possible shock.

Langley Porter, of San Francisco, reports 26 operations by this method, including a series of 12 by Downs and Holt, with one death.

The feeding of thick gruels of farinaceous foods had been done for some time to relieve idiopathic vomiting in infants when Sauer, of Evanston in 1918, reported 12 consecutive cases of pyloric obstruction treated by this method with one death from pneumonia.

Porter reports 10 cases so treated without a death. He writes "In all, the vomiting ceased so promptly that it seemed almost a miracle and with cessation of vomiting came a rapid restoration to nutritional balance." These men seem to make no distinction between functional and anatomical conditions of the pylorus in the application of this therapy.

Upon the hypothesis that the vegetative nervous system is at fault, Sidney V. Haas, of New York, says that atrophine presents itself as the rational therapeutic agent. He divides hypertonic infants into three classes, 1st. Those without pylorospasm; 2nd, those with pylorospasm and 3rd, those with hypertonic pyloric stenosis. There is a considerable group of pediatricians who essentially agree with this conception.

In the light of the foregoing discussion a report of the four following cases seen within the past year and a half will be of interest.

The first, a boy baby of one month, was seen through the courtesy of Dr. Hal Smith, of Franklin.

Family History. Youngest of three boys, the others being well and having nursed the breast successfully.

Personal History. Born at term; birth weight 7½ lbs. Nursed the breast successfully. Nothing abnormal noted for three weeks when patient began to regurgitate a part of his food. The vomiting became more frequent and of greater quantity. I first saw the child after a week of progressive symptoms during which the usual efforts had been made to control the vomiting commonly due to indigestion.

Present condition (Nov. 20th, '19). Child very restless and very hungry. Fairly well nourished. Constipated—the stool small but well digested. Food eagerly taken and retained from ½ to 2½ hours. Vomiting violent and at times projectile. Breast milk and proprietary foods were vomited with the same promptness and certainty. Temperature normal. No symptoms of increased intracranial pressure. Peristaltic waves distinctly visible after food had been taken. A tumor about the size of an olive could be felt in the epigastrium.

A diagnosis of pyloric obstruction was made. The family was of unusual intelligence, the father being a pharmacist, and the case was freely discussed with them. The two lines of treatment were presented to them—the thick gruel feeding already mentioned and surgical intervention. It was decided that the former should be tried; but with the agreement that if the vomiting was not controlled and the loss of weight at least arrested an operation would be made.

I prepared and fed the first gruel. It contained skimmed milk, water, rice flour and dextri-maltose and was boiled until so thick that it would not drop from a spoon readily. It was put into a bottle and kept in a bath of water as hot as the child could take the food and transferred to the nipple with a spoon. The nipple was slitted so as to allow the food to pass through readily. It was eagerly taken and retained better than anything that had been given. The child seemed more satisfied and the weight remained stationary for two days. Peristalsis was visible and the stool was increased in amount. The mother was entirely efficient in preparing and giving the food and though the food was increased in quantity and in value and was fairly well retained the weight gradually declined.

Six days later, when I saw the baby the second time, I advised operation. It was deterred eight days more or fourteen days from the first consultation during which time the patient lost thirteen ounces. Even at this time there was reasonable hope of saving the child's life.

Dr Calbreath did the Rammstedt operation requiring but fifteen minutes. The pylorus included a tumor about 1¼ by ¾ of an inch and was of the consistency of a chicken's gizzard. There was apparently considerable shock though but very little hemorrhage. The patient did not rally well, did not take nourishment and was very restless. The temperature rose to 104 and the child died six hours after the operation.

The second case, referred to me by Dr. Mitchell, of Red Cloud, was a boy 9 weeks old. He was the youngest of three. The first nursed the breast successfully. The second "vomited the breast milk and had to be weaned" but was fed successfully on the bottle. When three days old, the milk having come in the breasts, the patient vomited after nursing. When brought to my office he had been on various kinds of foods and vomited all. He was then on cow's milk, sodium citrate solution, dextri-maltose and water. Though the formula was consistent for a child of his age and size, most of the food was vomited and the child was hungry and sleepless and cried almost continually. At this time, 9 weeks old, he weighed 9 pounds. The vomiting was free and sometimes projectile. No peristaltic waves could be seen nor a tumor certainly felt in the epigastrium.

The child was placed in the hospital and cereal gruel, as described in the other case, was given three hourly. When the consistency of mush it was well retained. If given as thin as soup the same formula was promptly vomited. The patient cried less and the bowels moved normally. He did well for three weeks then began to vomit, to be hungry and constipated. Two drops of 1:1000 solution of atropine were given before each feeding and one week later the report showed bowels moving well, little vomiting and a gain of 5 ounces. Report one month later said "Vomits little, is happy and laughs and bowels are normal," but if the food were too thin or the atropine omitted he would vomit. At 13 months of age he weighed 18 pounds, received no atropine and there was no inclination to vomit.

The third case was a boy of 3 months. He was the youngest of four. No unusual feeding trouble with the others. His vomiting began gradually and had continued three weeks when I first saw him at three months. He received malted milk and cow's milk modified with a digestive preparation; but promptly vomited some of every thing swallowed. His birth weight was given as 11 pounds and was the same at three months. He did not look nor act like a hypertonic baby except for the vomiting. The bowels moved fairly well. He was given a rational formula of cow's milk, water and dextri-maltose; but vomited considerably. Dried milk was fairly well retained but a supply was not available. Thick gruel made of cream of wheat and skimmed milk was retained. He did decidedly better when receiving a drop of atropine solution before each feeding. He was comfortable, bowels moved well and his progress was uninterrupted. At 8 months he weighed 17 pounds. At this age the atropine was discontinued and the food was of the consistency of soup.

The fourth case was a baby boy, breast fed.

Family History.—The father's history is irrelevant. The mother, when a child, had convulsions until ten years old. A brother of the patient nursed the breast and did well for two weeks when he began to vomit and in spite of stomach washing and careful management continued for four weeks.

Personal History.—Born at term; unusually husky and likely. Nursed readily and did well until the 4th week when, rather suddenly, he began to vomit some. By the end of the second day neither breast milk nor water was retained. Vomiting was projectile and there was no nausea. Bowels normal. On first observation a peristaltic wave was noted; then for several days no others were seen though carefully watched for. Later they were typical. No tumor was felt at any time.

After the first day the stool was small, green and mostly mucus.

During the first three days the average loss of weight was two ounces; during the next two days, three ounces daily. The stomach was washed, gruel feedings and atropine solution given, but all to no effect. The dehydration, which was becoming marked, was checked by giving salt solution by the bowel and small amounts of 7% dextrose solution by the mouth. Dr. Hopkins, of Hastings, did the Rammstedt operation on the child four days after the symptoms were well developed. Before the operation 100 cc. of physiological salt solution was placed in the peritoneal cavity. The operation required 17 minutes. There was little shock and very little hemorrhage. Except for a bronchopneumonia contracted at the time of the operation the patient made an uneventful recovery and after three months is in good condition.

In the first and fourth instances we had typical cases of hypertrophic pyloric stenosis. The first was lost, probably by deferred operation. In this case only, was a tumor palpable and that after a week of vomiting. In the fourth case a wave was seen on the first day and not another until the fourth day. In all the temperature remained normal, the vomiting was projectile and of equal severity, and there was loss of weight. In the second and third cases the vomiting was controlled by the use of thick gruel feeding. In both a solution of atropine was of undoubted use. In the first case the gruel feeding and atropine were more effective than any thing else; but not really successful. In the fourth case they were useless.

There is no definite proof that in cases two and three there was any hypertrophy of the pylorus. They may have been purely spasms occurring in hypertonic babies of exaggerated degree who vomited every thing except thick gruel. By Holt's conception of pyloric stenosis they never would have become hypertrophic because he says that the hypertrophy of the annular muscle is congenital and that it is the hypertonic element that causes the stricture.

According to Haas' classification these two cases belong to the second group or that with pylorospasms with the possibility, if untreated, of reaching the third group or hypertrophic stenosis.

GROUP MEDICINE FROM THE STANDPOINT OF THE SURGEON.*

H. M. Hepperlen, M. D., Beatrice, Neb.

Some twenty-five years ago, a physician's success depended very much upon tradition, convention, and impressive surroundings. The silk top hat and the double breasted frock coat, were considered a necessary part of the doctor's equipment. He could look wise, say little, and impress his patients.

Since its very earliest history, the practice of medicine has been more or less shrouded in mystery. In these more modern times this mystery is being largely cleared away, and doctors are no longer looked upon as miracle workers. The average intelligent citizen is demanding that he be given a reasonable explanation for the cause of the symptoms that are distressing him. The physician can no longer count the pulse, look at the tongue, and write a prescription and be considered as practicing efficient medicine.

I do not believe that there is anything that has so retarded the growth of confidence of the public in the medical profession, and has so fostered the development of quackery and fads, as inexcusable errors in diagnosis, due to insufficient examination. If we are to successfully treat our patient, we must first determine what is the matter with him. The very first essential in the correction of any physical ailment is a correct diagnosis, without which all treatment is empirical, and with which treatment becomes rational.

That which has characterized scientific medicine and differentiated it from the faddist and charlatan, has been, and always will be its tireless pursuit of truth, which in its application to the practice of medicine means its constant endeavor to make an accurate and complete diagnosis. If we are to progress in the practice of medicine, we must place diagnosis in the foreground where it belongs.

The practice of medicine in the present day includes the application of all that science has shown to be of value, in the prevention, diagnosis, and treatment of disease, and the promotion of health.

The advancement in the field of medicine has been so rapid, and the field of medicine has become so broad, that it is conceded by all leading physicians, that it is impossible for one man to even acquaint himself thoroughly with the whole field, much less attempt to do its work.

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*Read before the Third Councilor District Meeting, Table Rock, Neb., Oct. 14, 1921.

Every physician who has practiced general medicine, knows and feels his limitations in the examination, diagnosis and treatment, and particularly in the diagnosis of a large group of cases that do not admit of ready and accurate solution, but require the aid of the pathologist, the roentgenologist, or other specialists. Hence specialization in medicine has become a necessity. This is in line with the ever upward progress of scientific medicine. Physicians have come to be more or less dependent on the skill, ability, and specialized training of other physicians, that they may the more accurately diagnose disease, and properly care for their patients. Thus a spirit of cooperation is being formed, and it is well for the future of scientific medicine and for the public that this spirit of cooperation is crowding out the old spirit of competitive jealousy.

Now there can be but one just and sufficient reason for the formation of the group, and the practice of group medicine, and that is to render better service. There does not seem to be any doubt, in the minds of many of the leading practitioners, but that group medicine does furnish a system for better medical service, than individual practice. Dr. Frank Billings in a recent article says, "Group medicine is considered by most members of the profession as a distinct advance in the methods of medical practice." W. J. Mayo states, "Our failures as a profession are the failures of individualism, the results of competitive medicine. A frank recognition of the necessity for cooperation, is necessary."

Every group, should comprise, at least a surgeon and gynecologist, an internist, a specialist in eye, ear, nose, and throat disease, a Roentgenologist, a laboratory pathologist, a urologist and a proctologist, and if possible a dentist and a trained nurse. The number of specialists in the group may, and should be increased, to meet the needs of the community in which the group is located. The relations between the group and the general practitioners of the community in which the group is located should be one of mutual helpfulness.

We do not subscribe to the theory that the general practitioner will cease to exist. We do believe that his work will become more definite, and limited, and indeed will become a speciality in itself.

There are a number of conditions and ailments, which admit of somewhat ready diagnosis without detailed examination, and which permit of treatment in the home. There are and probably always will be, the emergency conditions, where it is necessary for the physician to see the patient promptly in the home, at least for the first visit, and to determine whether or not the condition is one that can be properly cared for in the home. The general practitioner must be a physician of large sympathy, and general knowledge, and his position is and always will be of the greatest importance. He comes in closest contact with his patients and is the family adviser in matters of health. There is a feeling existing between the patient and his family physician, which the man who practices group medicine can not have. Not every physician is adapted by nature and training to be a good family physician. Neither is every physician who practices general medicine successfully, adapted to the practice of group medicine. The general practitioner of the future who desires to hold his place and his practice in the community will recognize his field, and his limitations, and will no more attempt to care for a case that is outside his field than will the specialist in eye, ear, nose and throat, attempt to do abdominal surgery.

The public is demanding more and more efficient service. We must furnish that service.

From the standpoint of diagnosis, two classes of cases are presented. First: Those admitting of ready diagnosis, without the aid of the pathologist, Roentgenologist, or other specialist. Second: A large class not admitting of ready diagnosis, and requiring much detailed examination. And from this second class there will be found a certain percentage that do not admit of diagnosis. The diagnosis, if made at all, will be made at post mortem.

It is in this large second class of cases, that the group, can be, and should be, of the greatest assistance to the general practitioner. If he brings or refers his patients with conditions, which he is unable to diagnose or treat to a properly equipped group, the diagnosis may be made, and if the case is of such a nature that it may be treated in the home, the case is returned to him, with a diagnosis and cooperation in treatment. If it is a case requiring treatment, which he is unable to give, it may be cared for in a hospital by the group, until such a time as it may be returned to him for further observation and care. In either case, the family physician retains the confidence of the patient and retains the patient.

On the other hand, when the general practitioner attempts to treat a case for which he is not especially trained and equipped to make a diagnosis, he brings discredit upon himself and upon the profession. The patient passes out of his hands, perhaps to the osteopath or chiropractor, or may perhaps himself go directly to a group, and when asked by the internist who takes his history as to who is his family physician, will maintain that he has none. He will state that he was under Dr. So and So's treatment for a long time but got no results, so tried the osteopath or the chiropractor or both, but that he is no better, and that he now comes to the group to find out if possible what is the matter with him—what is the cause of his distress. Now in instances of this kind the group is often censured for not communicating their findings to the general practitioner who formerly treated the case, and still maintains that the patient belongs to him. If the patient is willing, such a report should be made, but in some instances—yes in far too many instances—the patient will not permit, maintaining that he has lost confidence in the physician, and wishes to be under the direct care of the group.

Every properly formed ethical group much prefers that its patients be either brought to the clinic by their family physician, or referred by him. Then can there be true cooperation, and better service to the patient.

The family physician should make a just charge for this service. No ethical group, can or will, make this charge for him. The patient must not be exploited for the financial benefit of either the group or the family physician, and no ethical group will subject any patient to an examination which is not necessary for the accurate diagnosis of the case.

Instead of the group being a menace to the general practitioner, as some few would have us believe, the group should be, and will be, we believe his salvation.

Now as to the specialist: The conscientious specialist today finds himself confronted by precisely the same difficulties that disturb the general practitioner in an honest attempt to obtain for his patient the best medical science can offer in diagnosis and treatment. Whatever his field, he, like the general practitioner, finds himself constantly in need of expert opinions in other fields to correlate with his findings. Granting then that collaborative effort on the part of several specially trained men is often necessary to establish an accurate diagnosis, and lead to proper and rational treatment of a large number of conditions, the question of importance is, how can such medical service be best accomplished? The experience of the past has demonstrated that such a service cannot be efficiently rendered by a number of specialists working independently of one another. Under such conditions there is much repetition of work and unnecessary expense. Worst of all, there are often serious ommissions in the examination. Given the necessary professional talent there must be in addition, close cooperation of the several specialists making the examination with the proper collection, interpretation, and evaluation of their findings. This often requires the calling of case conferences. I consider this one of the greatest benefits to the patient, as well as the physicians in the group. Then too the patient requires professional guidance, and someone must give to the patient a summary of the findings. With the patient to be referred from one physician's office to another, in different buildings or perhaps in different parts of the city, real cooperation becomes increasingly difficult, the more they are scattered. The frequent necessity for communication between specialists, the advantages of easy access to complete records of the case, are in themselves reasons sufficient in our estimation, for the grouping, in one suite of offices, of such a staff.

To practice group medicine successfully each member of the group must be a firm believer in the golden rule and in the adage that, "He profits most who serves best."

We shall not discuss at length, the financial aspects of group medicine, except to say, that they should be as just and fair to each member, as they can be made. No physician should engage in the practice of group medicine with the primary purpose of increasing his income. The probability is that if he is the type of a man to make a good and efficient member of a group, he will take a smaller income for a time when he goes into the group. The question arises then why group practice?

From the standpoint of the surgeon the reasons are numerous. A major operation is always serious. It is never a trivial matter to give a patient a general anesthetic and open the abdominal cavity. No patient should be subjected to a major surgical operation if such an operation is not clearly necessary, or advantageous to him. On the other hand no patient should fail to receive proper surgical treatment when such treatment is definitely indicated. I am convinced that under group practice fewer patients who do not need surgery are subjected to it, and also that fewer who need surgery fail to receive it. My mortality rate has been considerably reduced since I have associated with me the group, and I attribute this not so much to improvement in technique and greater experience, as to the fact that more accurate and complete diagnoses have been made. All of the resources of science should be utilized if necessary, in the investigation of any malady. The group furnishes a means whereby a more thorough investigation of disease can be made than by the individual practitioner of the various widely separated specialists.

CONCLUSIONS.

1. Present methods of individual general and special practice do not meet present day needs.

2. In order to meet its responsibilities and render the best service there must be a closer cooperation between physicians.

3. The general practitioner must become a specialist, and must not attempt to do work for which he has not the necessary preparation or equipment.

4. The medical profession must either reorganize along cooperative lines, and render reasonable and efficient service, or expect some form of state medicine.

5. A study of the results of state medicine in Germany and England convinces the most skeptical, that while the theory may be beautiful, in practice it has been a miserable failure from the standpoint of efficient service to the patient, and that the practicing physician has been degraded.

6. The greatest asset of any nation is the health of its people. No citizens have so great a responsibility as do the members of the medical profession. Our failures of the past have been because of individual and competitive practice. Our greatest advances have been made through cooperative practice. If we are to perform our whole duty, and render the highest degree of service, it must be through cooperation.

THE SCHICK TEST AND DIPHTHERIA.*

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It is no longer necessary to give prophylactic injections of antidiphtheric serum to all those exposed or likely to be exposed to diphtheria, as it has been shown that many persons do not contract diphtheria even from what may be regarded as abundant exposure. The determination of this immunity dates from the work of B. Schick(1) since which a large amount of clinical evidence has accumulated to demonstrate without question, that the Schick test should be applied to all persons who have been exposed to diphtheria and that only those who react positively should be given prophylactic injections of antitoxin. The technic of the test is most simple and the negative reaction, which indicates immunity of diphtheria, is not difficult to determine. Some experience, however, is needed to separate the true positive reaction from certain atypical or so-called false, or pseudo reactions, especially at the end of the first 24 hours. Such a false reaction may occur in highly immune persons and is not always easily explained. The test also assists in distinguishing cases which are diphtheria from those that are bacillus carriers. Diphtheria bacillus carriers usually develop relatively large amounts of antitoxin in the blood (and hence react negatively), whereas, in the acute stage of diphtheria, before injection of antitoxin the patient's blood contains little or no antitoxin, and the reaction is positive. In cases of acute diphtheria full doses of antitoxin always immediately modify or may completely inhibit the cutaneous reactions(2). Kolmer and Moshage(3) and others have summarized the relation of the skin reaction to the quantity of diphtheria antitoxin present in the individual tested.

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*Abridged from a paper read at Fourth Dist. Councilor Meeting, Tekamah, Dec. 12, 1921.

They state that "persons reacting negatively to this test usually contain 1/20 unit of diphtheria antitoxin per cubic centimeter of serum, and this amount of antitoxin is probably sufficient to protect against infection." "Persons reacting weakly or strongly, positively, usually contain less than 1/40 of a unit of antitoxin per cubic centimeter of serum or none at all. These persons may be regarded as susceptible to diphtheria and in the event of exposure to infection should be passively immunized." These authors also find that in children from 1 to 15 years the preliminary use of the toxin test will eliminate the necessity of prophylactic doses of anti-toxin in about 50% of cases.

Pseudo-reactions: It has been found that, in spite of the greatest care in performing this test, pseudo-reactions occur alike in susceptible and in immune persons. The difficulty in separating them is particularly evident during the first 24 hours after the injection, when it may be impossible to differentiate the false from the true toxin reaction. On this account Kolmer and Moshage (4) suggest that as a precautionary measure it is advisable to record all reactions, evidently nontraumatic, as positive unless a control bouillon injection is made at the same time. Delay in reading the reaction usually clears up the doubt. These investigators mention the following two common causes of pseudo-reactions:

1. Traumatic, due to injection of fluid containing tricresol into the epidermis of persons whose skins are, for some reason, unduly sensitive. 2. Local anaphylactic reactions of a general protein character as described by Parke (5).

Basis of application of the test: In conducting the Schick toxin test for immunity to diphtheria it is advisable to employ a highly potent toxin and to inject about 1/50th. of the minimum lethal dose, so diluted with normal salt solution as to be contained in 0.05 to 0.1 cc. The percentage of tricresol present should not exceed 0.25 percent. The control fluid is composed of bouillon diluted to 10 to 100; this should be injected at the same time in the same amount and greatly aids in detecting skin hypersensitivity and pseudo-reactions.

Traumatic reactions, Clinical appearance: Very small areas of erythema above the site of injection, measuring 2 or 3 millimeters in the largest diameter, may safely be regarded as traumatic (Kolmer and Moshage). These reactions are usually recognized by their early appearance, their less circumscribed form, greater infiltration and the fact that they disappear in from 24 to 48 hours at the latest, while the spot is less pigmented and superficial scaling is not noted. (6)

Specificity: Abraham Zingher (7) reports an examination of 1300 scarlet fever cases of which 700 gave negative Schick reactions. Not one of these negatives developed clinical diphtheria, although none were given immunizing doses of antitoxin and all were constantly exposed in the wards to cases of diphtheria.

Dr. Abraham Zingher, (8) who has charge of the school children of the city of New York has had the opportunity of applying the Schick test to more than 52,000 children in the public schools this fall. Children giving positive reactions received the injection of toxin-antitoxin. They found that among the children of the more well to do classes of the population, there was a much higher proportion of susceptible individuals than among the children of the poorer classes. The ratio was as high as three to one. On the one hand relative segregation of one group of children, and on the other, crowding and repeated exposure of the children of the second group explain these interesting findings. Another point that came out in this work was the frequency with which negative pseudo-reactions were noted among the children of public school age. In some schools they found as high as 25% negative pseudo-reactions. These individuals are not only immune to diphtheria but they are the very ones who show very severe local and constitutional symptoms after injections of toxin-antitoxin. Age has a great deal to do with susceptibility. Infants under six months are protected temporarily in fully 85 to 90% by an inherited maternal antitoxin immunity against diphtheria. The most important period of life in which the toxin-antitoxin should be used is from six months to two years. A negative reaction in this group cannot be entirely depended upon, as the reaction changes in many of these infants from negative to positive (loss of maternal immunity). It is, therefore, strongly advisable to omit the Schick test and inject all children in this group with the three doses of toxin-antitoxin, and the group between two and five years of age should also be injected with toxin-antitoxin. The simple subcutaneous injection of three doses of toxin-antitoxin would appeal to many physicians who are not thoroughly acquainted with the technic or the interpretation of the Schick test. The injections of toxin-antitoxin produce very little pain and discomfort in these young children. The rule may even be established that the younger the child, the more tolerant it is to the injection of toxin-antitoxin. At all ages, it should be remembered, that no child can be pronounced immune to diphtheria until he has been proved so by a negative Schick test. For this reason the test should always be applied six months or later after the injections of toxin-antitoxin, as a final part of the procedure of active immunization against diphtheria. The foregoing facts indicate that the solution of the diphtheria problem depends on just such a general active immunization of all children of preschool age. Compulsory immunization would be a great forward step in this direction if public opinion could be enlisted by educational propaganda to the advisability of such a step. In children and adults over 15 years of age, the Schick test should always be applied before immunization, to determine their susceptibility to diphtheria. It is in these individuals that we find the more marked forms of negative pseudo-reactions which should be identified as such, and not mistaken for positive or positive combined reactions.

I have had under observation, together with my colleagues, 1,064 school children at Columbus, Nebraska, to whom we have administered the Schick test and control. Of these, we had approximately 65% positive reactions. This compares with private schools and one rural school as follows: A school at Lawrenceville, N. J., had 79% positive reactions. The George School at Georgetown, Pa., had 75% positive reactions. In a rural school at Shilo, N. J., they had 85% positive reactions. These are striking figures and indicate that segregation of the children, either among the well to do, or in rural and sparsely settled sections, plays an important factor in retarding the development of the natural immunity to diphtheria. (9)

Since Schick described his technic of testing intracutaneously to determine the presence of immunity or susceptibility to diphtheria, and Behring applied the toxin-antitoxin method of confirming an active immunity of all susceptibles, the disease from an epidemiologic standpoint, has undergone many changes. In this country, the work of Parke and Zingher is ample proof that the claims of Schick and Behring have stood the test of time and will be recognized in the future as a great boon to humanity. One more convincing evidence of the tremendous bearing of laboratory on clinical medicine.

Less than 50 years ago nothing was known of the disease except its clinical characteristics and tremendous mortality rate. In 1883 Klebs discovered the etiologic agent. In 1884 Loeffler isolated the organism and cultivated it on artificial media. In 1893 Behring gave to the world the epoch-making antitoxin and reduced the mortality from 75% to 10%. Since then, however, the morbidity and mortality from the disease had not changed and no advances occurred until Schick described the method whereby immunity was determinable, and Behring the methods by which active immunity might be conferred. Each one of these scientific laboratory achievements, today plays a role in the control of diphtheria and, combined they place at the disposal of medicine means through which the ravages of diphtheria may be spared to posterity.

Another subject that should be included in a paper on diphtheria is the "diphtheria carrier" but this subject has so many details in the discussion of it that I will not attempt it today; suffice it to say that the carriers of diphtheria bacilli have been objects of study for many years. (10) So much interest attaches to them as potenial spreaders of infection. The carriers are the main sources of infection and should be isolated and given medical and surgical treatment if necessary, or until the germs become avirulent as determined by a virulency test.

In conclusion: It is only by the closest sort of cooperation with physician, householder, and public health worker, that diphtheria is to be controlled. All must join forces to spread the information so concisely expressed by Professor Winslow, who said: "We possess a more complete knowledge of diphtheria and a more complete power over diphtheria than in the case of any other communicable disease. We can detect the incipient case and the carrier. We can measure natural immunity by the Schick test. We can produce passive immunity by the use of antitoxin, and active immunity by the use of toxin-antitoxin. I believe the weapons which are needed to fight this enemy are in our hands, yet diphtheria continues to occupy third place among the communicable diseases, and in every state the death reports due to diphtheria are entirely too large for this day and age of civilization."

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THE PHYSICIAN AS A WITNESS.

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In theory we distinguish the ordinary witness, who gives evidence as to facts personally known to him, from the expert, whose function is to give an opinion based on a statement of evidence assumed to be true, or who makes a technical examination, such as the chemical investigation of the organs of the body, requiring special knowledge to perform, and gives an opinion based on its results. The expert is assumed to be a person whose technical knowledge of the question at issue is full and complete. On certain subjects (admirality affairs, insurance, methods of hiding financial crimes in business records, and the like) care is taken in the choice of the witness; but courts, not having a high opinion of medical experts, for reasons not necessary to detail, accept any physician as an expert who has a legal right to practice medicine. In real life, the ordinary witness almost always also acts unknowingly the part of an expert, in that he almost always gives opinions as well as stating what he saw, heard, felt, smelt or tasted because human nature is so constituted that the average witness, controlled by bias, relates what he believes must be true or ought to be true; relates what his mental eye perceived, not what his physical eye saw. Hence many apparent perjuries are really incorrect intellectual judgments based on unconscious falsifications of memory. Though in this paper I shall discuss the physician both as an ordinary and as an expert witness, I shall refer only very briefly to that threadbare subject, the reform of the expert, because I know of no substitute for him. All the proposed substitutes for the present system contain evils as great, if not greater, than those we already suffer from. The suggestion that experts should be appointed by the judge hearing the case, apart from the fact that it would deprive litigants of certain constitutional rights, a thing of no importance in the eyes of reformers, is unwise because it assumes what is not true, namely that the average judge is competent to choose experts in all kinds of litigation. Personal friendship would play too large a part in the appointments. The judge's medical friends would be appointed by him because he would be sure at least of their honesty, but many times the alienist and a good baby doctor would be called on to decide the proper shortening in a broken leg. The proposal that experts should be elected by the people is little short of crazy, because people are incompetent to choose, and the persons elected would at best be decayed gentlemen who had failed in life, at worst, they would be politicians hungry for jobs. Another remedy, namely, to have official experts appointed by the court but allowing litigants to have in addition private experts, so far from making matters simpler would make them more complex. Better to continue the present system and trust that the common sense of judge and jury will prevent their being deceived by lying or ignorant witnesses. They rarely are deceived.

I intend to use the medical witness for a study in clinical, human psychology, and I shall so far usurp the place of the pedagogue, as to give advice concerning matters that all physicians ought to know but which, my experience in court and in legal proceedings has proven to me, many of them do not know. I do not wish to be regarded as a self-appointed censor of medical men nor to be looked upon as a common scold, therefore, I here and now ask pardon if sometimes I seem to be caustic.

The physician is not frequently called as a common witness, and when he is, he stands in the same relation to the court as anyone else and his duty is simple. He has only to state what he knows of his own knowledge, then quietly submit to cross examination and finally leave the stand, having so far as in him lay tried to tell the truth in the cause on trial. Doctors as a rule, because of their training in observation, make good witnesses in nonmedical matters.

Most often the physician is called because he is, or has been, the attendant of the person whose cause is on trial, and, whether willing or not willing, he soon finds that he is being used as an expert by the side that calls him. Now psychology comes in and matters begin to be interesting to the onlooker. Such a witness as a rule is a general practitioner, whose skill and integrity may vary from that of the wise, honest, skilled man, with clear mental vision, who is friendly to his patient and wants to help him so far as is right and proper, but who has learned there are two sides to every question, down to the loud mouthed ignoramus. The high class general practitioner, under these conditions does not regard himself as an expert, though really his knowledge is profound, and he refuses to say anything which may lead to its being claimed that he is pretending to be one. His word carries great weight with judge and jury, because he is manifestly honest and skilled and talks in simple language understood by the people. His ignorant colleague on the contrary, though he will swear to anything which he thinks will strengthen his patient's case, not because he cares a rap for the patient, but because he sees a big fee in the future, resents being subpoened, thinkshe should be treated as he imagines experts are treated, makes an ass of himself on the stand and sends in a bill, which to his astonishment, is never paid. Sometimes a medical cub, who is really a fellow of parts and suffering only from the self-sufficiency of adolescent vanity and conceit, resents being treated as a mere family physician and when questions of opinion are asked of him, refuses to answer on the ground that though he knows, he is not going to give his knowledge away and demands to be assured that he will be paid for his very valuable opinion. Then the judge gets cross, the lawyers on the opposite side sarcastic, those on his own side keep very quiet, and it ends by the witness giving much amusement to the audience, no valuable information to the jury and leaving the stand in a very unhappy frame of mind. If he merely be young, but of good stock, and worthwhile protoplasm, he will develop and become a very good and wise doctor; if he be a product of poor protoplasm, he will not change but continue to bray at every opportunity throughout life, thinking he is making celestial music.

One type of expert is, perhaps because of my virulent bias, very antipathetic to me. I mean the universal specialist. It may be that my subconscious mind envies him his vast learning and that really I have a suppressed Freudian wish to be like unto him in his erudition, but my conscious emotional state is far from happy when I hear a man, who has no standing in the profession giving opinions, as an expert, on questions in the whole domain of medicine. It may be that my unfriendliness is caused by the feeling that a member of another tribe is poaching on my reserves but I do not think that is why I dislike him. The real reason is, such a man is a humbug.

Now as to the pshychology of the medical witness. The greatest and most frequent evil, is bias. Bias is the great obstacle to clear thinking, because it prevents seeing things as they really are. Today it is frequently called the subconscious mind. Man is so wholly an emotional animal that bias is almost never absent when we are forming a judgment concerning any problem in which we have a personal interest. As a rule, indeed, bias, not reason, controls judgment. Two and two are always four in abstract mathematics, but when you are buying or selling, unless you are an unusual person, the sum is, likely to be three or five. Bias controls us in matters much more serious than buying or selling and influences physicians quite as much as other people. Hence medical men often go on the stand with an opinion based, not on fact, but on prejudice. For example, Dr. Blank has attended the A family for years. All the time there has been a family quarrel of which he knows nothing. He is acquainted with the members of only one faction. The father dies and a daughter, whom the doctor has known for years, gets little or nothing by his will. She comes to the physician with a tale of woe, accusing her sister of having poisoned her father's mind against her, asks him to appear for her in the will contest, which she has decided to make, and relates to him many peculiarities her father showed. Now bias exerts its influence. He has known the woman, or rather thinks he has, for no man ever knows a woman, and never solves the riddle of her personality, for years, and he immediately jumps to the conclusion she has been unjustly treated. He says, and believes it, "Of course your father was insane," but when he gets on the stand he learns that eccentricity of conduct, bad temper, slovenly habits, drunkenness, do not render a man incompetent to make a will. For the rest of his life he has a very bad opinion of the law.

Again bias, especially in will cases, prevents the witness from comprehending that he has nothing to do with the moral consequence of his evidence upon the public welfare. He has sometimes a fixed belief that money should stay in the family, and a will giving it to other people creates in him a feeling of antagonism. To him, to favor such conduct is wicked. For example, a witness opposed the competency of a woman to make a will on the ground that it was wrong for a woman to leave her money to her paramour, and that this particular woman, whose will was being contested, would not have done so if sane. When the judge said that was not what he was on the stand for, he did not like it. He honestly felt he was a censor of public morals (everybody censors everybody else's morals today, I am doing it this minute) and did not know his duty was simply to tell the court whether a given woman was in mental condition to know what property she had, what she wanted to do with it, understood the ordinary relations of the members of a family toward each other and was not delusional.

Nothing shows up the nature of a physician, his psychologic type, more than his manner on the stand. Among those who make a bad impression and carry no weight with judge or jury is the gentleman who seizes the opportunity to give a clinical lecture. He is talkative; he has a veritable diarrhoea of words, but his words bear little relation to the questions asked. He loves technical terms, and never uses a word of one syllable when there is a pollysyllabic one having a somewhat similar meaning. Bruises are "contusions," and a wound in an arm, "a break in the continuity of the substance of an extremity." He is oratorical, prefers to stand when a tipstaff, thinking to be polite, offers him the witness chair, strikes attitudes, and is a joy to the heart of newspaper comic artists. He walks to the stand with stately tread. He, as a rule, is ignorant of medicine and is soon tangled and confused by a skilled cross examiner. His attitude toward the latter is from the first, one of antagonism. He forgets the lawyer has every advantage over him and soon loses his temper, froths at the mouth and leaves the stand impotently mad, or he may be so thick skinned and vain as to think he is a hero.

One type of witness who is dangerous is the mentally alert, technically well trained man who has a twisted moral sense. Fortunately such men are rare, but they exist. They will appear on either side, dependent on who will pay the higher fee. Only cross examiners of the greatest skill can show them up, but juries often smell a rat.

Then there is the medical witness who, though he knows that the law has arbitrarily set down what, in a court constitutes insanity, disregards the legal meaning of the word. For example, a certain expert believes that murder, and indeed all crime, is, in and by itself, positive proof of insanity. May be it is, but the law is of opinion that it is not. Such an expert will swear that a man was insane when he committed murder, but when asked on what his opinion is based will carefully hide his real opinion as to what constitutes proof of insanity. Now it is a question in casuistry whether he is honest. Should he not refuse to go on the stand, stating frankly, when he is asked to appear as an expert, that his opinion as to what constitutes insanity is so unlike the legal view that his opinion would not be of use?

In any discussion concerning the medical witness the question of the good or evil, usefulness or uselessness of the hypothetical question must be considered. In theory the hypothetical question is assumed to contain all the facts on one side of the question at issue, in order to get the expert opinion of a man who could not, of his own knowledge, know the facts; in medical matters for example, the opinion of a physician who never examined the man. Now it has been proposed to prohibit the hypothetical question entirely. This would lead to great evil. For example, a man who has had no medical attendant and has led such a narrow life that few people knew him, makes a will and dies. The will is found to divert his estate from his near kin in favor of a person whom he scarcely knew. Now is not the best way to find the truth, to make resumes of his conduct, one based on the evidence of friendly and another on that of unfriendly witnesses, and then ask men skilled in insanity what such statements indicate and finally allow the jury to decide which question gives a true account of the man's mental state? To ask a medical witness to base an answer on all the evidence on both sides is to ask a question impossible to answer because evidence is always contradictory and the expert would have to decide what evidence was true, what false, what to accept, what to discard, and in doing this he would usurp the duty of the jury. The ideal witness, whether expert or not is the honest, well educated man, sure of his opinion, who has considered all the data given him, and shows by his manner that he has no personal interest in the outcome and quietly and in simple language gives first the data on which his opinion is based and then his opinion with the reasons for it. The man who acts thus will be of use, and judge and jury will thank him in their very souls. It is wise to learn the evidence to be presented by the other side before accepting a position as an expert, because then you can really form a judgment as to which litigant is probably in the right, and can foretell the nature of the cross examination and prepare for it. To go on the stand knowing nothing about the case, save the hypothetical question, may end in your being compelled to change your opinion, when the lawyer in cross examination asks questions which put an entirely different light on the matter.

One cause of trouble in cases in which medical men are witnesses is the fact that insanity from the legal and from the medical standpoint are different things, and because physicians are prone, especially when controlled by bias, to mistake eccentricity for madness. To take the last first, things like the following have been seriously presented in court as a proof of insanity; refusing to wear a dress suit, though the man lived in a community where this fashion was common, never shaking hands with any one, becoming furiously angry with his family because he himself had mislaid his cane, ceasing to eat fish and forbidding his family to do so, compelling his children to dress differently from the other children in the town in which they lived, walking a certain distance daily at a certain hour, no matter how stormy the weather and refusing ever to wear an overcoat, wearing heavy underclothes in summer, refusing to bathe. Hundreds of incidents like these have been offered as proof of mental disorder. Now eccentricity is no proof of mental disability, and because a man thinks differently on many things from other people, or has peculiar habits, is no reason why he should be regarded as insane.

It is important to remember that the legal conception of insanity differs from the medical. Physicians are prone to believe that if a man has a mental disorder of any kind, he is not to be trusted alone, or to be without guardianship, or to be in any way responsible for his conduct. The law, on the contrary, decides there is a varying scale of ability to do things. For example, take the question of marriage. From the legal point of view matrimony does not require much intelligence. The legal point of view may be all wrong, and it is possible that this world would be much better if only highbrows were permitted to marry, and even they, only after a committee of reforming eugenists had examined the man and the woman and decided they were fitted to each other, but the law still has a little power in most states, and still holds that a man has the right to make a fool of himself if he wants to. I must, for the sake of accuracy, put in a parenthesis of exceptions. Legislation, in some states, has deprived the citizen of the right, formerly thought to be inalienable, of being a fool. Even the national government is beginning to assume the functions of a nursing mother to its subjects, who formerly were citizens. The result is that people, if they wish to keep within the law, may only make fools of themselves in ways which meet with the approbation of, and give pleasure to, professional reformers, sentimental altruists, "uplifters", and that large tribe who have never learned the lesson that a man's first duty is to take care of himself, make a man of himself, and be sure of his own mental and moral health before he undertakes to be a teacher and master of his fellows. Moral vanity is a major and prevalent sin, and has caused much vicious legislation, which if not repealed will increase the number of weaklings in coming generations. Let us hope the old legal maxim, as to freedom to be a fool, may once more gain vogue. Cases like the following come to court: A man had as a boy gone through private schools after a fashion, had never worked, had no hobbies, had sat around all his life, never been extravagant, never been friendly to his brothers and sisters, and sought the company of ignorant, but honest, laboring people. His estate had been left by his father in trust, but with the right to dispose of it by will. Three times, in his life, he had been in private sanitariums with acute mania, the last attack having occurred 15 years before. At 60 years he married a woman almost his own age and who had nursed him several times over quite long periods. The family pride was hurt that their brother should marry beneath them, they also did not really like to see $15,000 a year diverted from the family exchequer. They brought suit to annul the marriage. The man was dull, stupid, slow in thought and his mental level was low. He said, when put upon the stand, and it was true, he had known the woman for years, she had always been kind to him, had cared more for him, and done more, than his relatives and he wanted her companionship. No question of sexual desire came into the case, as he was a hypothyroid without sexual desire and she long past the dangerous age. The court held he was quite wise to marry and quite competent to do so. The couple lived together in peace and quiet for ten years and she inherited his wealth but only outlived him two years.

To be strictly accurate in my statement as to law as regards matrimony, I must wander a little from the question of the medical witness. Several states have passed laws limiting marriage to people who are free from certain diseases and who are not imbeciles. The purpose of the imbecile clause is not to protect a man from acting against his own interests in marrying, but to reduce the number of degenerates in the next generation. It is illustrative of the peculiarities characteristic of law making bodies in a democracy that in one state at least, the candidate for matrimony himself states to the clerk, who gives the marriage license, whether he is an imbecile; in another the clerk makes the examination and decision.

Will making, as I understand it, requires a higher level of intelligence or a different intelligence in some regards, than getting married. The person must know what he owns, what the usual relations of a man's kin are to him, and what he wants to do with his property. He must not be controlled by a delusion, nor subject to undue influence. As to some of these things a physician may be an expert, as to one he surely cannot. He is able to determine the existence of delusions and dementia, but when he attemps to decide whether a given person, not insane, is more liable than other people to be unduly influenced, he is undertaking a hard task. He is a brave, if not a foolhardy physician who tries to prove, by medical testimony, undue influence. Better leave it to laymen. Let neighbors relate how a designing female tried by her wiles to entrap the innocent old gentleman, who thought she was a sweet young thing in love with him, his cataractous eyes mistaking bleached hair for golden tresses, store teeth for nature's pearls, and an insinuating, artful voice for the innocent tone of girlhood. Neighbors are better witnesses than doctors in such matters.

The medical witness in murder cases takes a tremendous responsibility. In such cases, in this country, scandal is frequent. The only safe way for the expert to reach a decision as to sanity or insanity, is to put the crime to one side, and after getting a complete history of the man's life, make a mental and physical examination, and from all the facts draw a conclusion. Rarely the method of the murder indicates insanity, as in the "Jack the Ripper" crimes. Bias plays its part even in murder trials, indeed plays a large part. In one case, eight experts were on each side. They were all skilled men of good character except that one of the commonwealth's witnesses was notoriously a professional expert. Curiously enough another expert for the commonwealth refused to testify because he believed the accused was insane. Meanwhile a shrewd lawyer for the defense, had carefully prepared the minds of his experts to believe the prosecuting attorney was doing a gross injustice to an ignorant foreigner, by telling them there had been many murders and few convictions and hence every effort would be made to convict someone, it did not matter who, because the public was crying loudly that the district attorney was incompetent. The end was, though the accused was convicted, he was never hanged. He behaved like a sane man all the years he was in prison after the conviction. Bias, in honest and skilled men, saved his neck.

I have assumed throughout my paper, that the expert in medical matters is, as a matter of course, a medical man, but times are changing and a new kind of expert, especially as concerns the mind has appeared on the scene, and has begun to come into court to determine the questions of responsibility for crime. The new type of expert calls himself, or herself, for the field has been invaded by women, a clinical psychologist. He is not much interested in the older psychology and is carefully ignorant of cerebral physiology. He claims that, by certain so called mental tests, he can decide a man's fitness for a given work and the mental level to which he has attained. Many years ago Dr. Cattell, a distinguished American psychologist, proposed certain tests roughly to prove certain things, and others took up the work. Binet, a Frenchman, invented a series of tests for children, and others adapted them to adults and to test the criminal mind. During the late war several hundred young men were occupied testing American soldiers. Some of these tests seem a little useless. For example, one would think the best way to decide if a man would make a good sharpshooter would be to send him to a rifle range and have him shoot. Not so. The scientific way is, among other tests, to put a board with round and square holes in front of him, give him a round peg and if he can put a round peg in round holes so many times a minute, he will make a good sharpshooter. The fighting men did not look on this kind of examination with favor, and followed the older methods. But the taxpayers, as usual, paid the bill, and several hundred young gentlemen wore uniforms, and were patriots, but did not expose their bodies to German gun fire. Seriously, these tests are useless because they fail absolutely in the one important thing: they throw no light on integrity, intellectual ability, moral sense, or character. But practitioners of the so-called science have come gravely into court and offered their opinions as to the responsibility of criminals based on these tests. Juries have so far paid little or no attention to them.

Juvenile courts lose much time in having the boys and girls brought before them examined in this way. But the thing is new, therefore, it must be true. Once, for example, a cross examining lawyer told a jury that I was a very poor expert because I had not put through the Binet tests, a murderer who had carried on the business of store keeper for years. The man, however, got electrocuted, as the jury agreed with me that his life history and conduct showed he knew what he was doing when he committed murder and was therefore responsible. The moral is, medical questions better be left to medical men and women.

One word, in closing, about the physician's attitude toward cross examination. There is a common feeling among medical men that the purpose of cross examination is to prove the witness has perjured himself on the direct examination. This is an error. Every lawyer, save a few ignorant men and a still smaller number so vicious themselves that they think the whole world is as bad as they are, knows that the physician, as a rule, wishes to tell the truth. What the attorney is after is to try to show that, because of an error of judgment or from a misunderstanding of fact, the witness has made a mistake. The wise cross examiner never gets mad, and never pretends to, unless he wants to make the witness angry, knowing that then he can make him contradict himself. The wise witness never gets mad under any circumstances. The quieter the witness is, the more he shows his opinion is based on reason and not on feeling, the surer of his facts he shows himself to be, the shorter will be his time on the stand, and the greater his influence on the jury.

PRACTICAL PERIMETRY.*

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The arc perimeter is no longer regarded as an instrument of great precision by the ophthalmologist who desires accurate knowledge of the visual fields. The knell of this instrument was sounded with the publication of Bjerrum's tangent screen perimeter and its grave was deepened by Peter's campimeter, so that today the perimeter, that formerly was in daily usage by the scientific ophthalmologist, is accumulating dust together with the many other instruments that have been replaced by newer methods of greater accuracy. At first, these new instruments were essentially laboratory affairs, too clumsy and yet too delicate for routine office or clinical use. But improvements have crept in with time so that today accurate scientific perimetry may be carried on in the average ophthalmological consultation room and requires but little more space than the old time arc perimeter. It is not the intent of this paper to endeavor to present any radically new ideas or apparatus, but merely to show how tangent screen perimetry, both peripheric and central, can be carried on in the small space at the disposal of the average practicing ophthalmologist.

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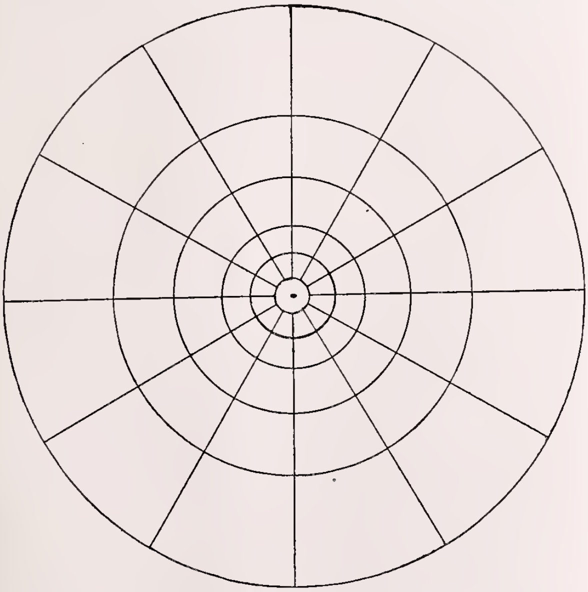
PERIPHERIC FORM AND COLOR FIELD EXAMINATION.

The original Bjerrum screen was intended for use at two meters from the patient and at that distance was necessarily of a size that precluded its use in any but large and well-equipped clinics. But the advantages of that screen can in the main, be retained by reducing the working distance between the patient and the screen, thus reducing the size of the screen. The working distance for daily routine use may be cut to 50 cm. which of course reduces the length of the radii on the screen. For the past five years I have been using a modification of the Bjerrum screen that has proven most satisfactory. An expanse of the darkroom wall, some six and a half square feet is painted a dull, dead black. A paint known at Ripolin, imported from Holland, gives the necessary dead surface without reflection. Upon this is painted with ivory oil paint in fine lines, the necessary markings of the tangential screen; the absolute center, the ten degree concentrics every ten degrees the periphery, and meridians every fifteen degrees which run from the ten degree concentric to the periphrey.



Angle of 10 degrees—Radius of 6.25 cm.
Angle of 20 degrees—Radius of 14.28 cm.
Angle of 30 degrees—Radius of 25.00 cm.
Angle of 40 degrees—Radius of 40.00 cm.
Angle of 50 degrees—Radius of 62.50 cm.
Angle of 60 degrees—Radius of 100.00 cm.
Angle of 70 degrees—Radius of 175.00 cm.

(Figure 1). After the oil paint has dried thoroughly, willow charcoal was dusted over the individual lines, dulling the shine and reflection, but still permitting the markings to be visible to the operator. The patient is seated on a stool, with his eye exactly 50 cm. from the center of the screen which is marked with a 5mm. round white spot. (A rapid method of establishing the distance of the patient from the screen is to have the handle upon which the target is carried exactly 50 cm. long). Standing on the floor and extending over the patient's head and slightly behind the stool, is a gas pipe framework in the form of an arch which carries five lights. The lights are of the daylight nitrogen type and carry reflectors directed toward the screen, thus supplying a uniform and constant source of light, the variances of which (due to differences in the current and wear of the filaments and to discolorations of the glass) are so slight as to be absolutely negligible. The target is in the form of a blackened cube of brass on the end of a slender 50 cm. long rod. The target that is used the most is 10 mm. in diameter and is covered with Heidelberg paper, a different color on each side of the cube (white-red-blue-green). The paper is more satisfactory than enameled colors which cannot be made in true color and which reflect too much glare. At the other end of the rod is a similar cube, only 5 mm. in size. In order to avoid attracting undue attention, the operator's hand and arm had best be covered with a black sleeve.

The use of the instrument is simple and rapid. The patient is seated on the stool with one eye covered with a black patch and with the illuminating arch just far enough behind him so that no direct light enters his eye. The distance between the patient and the screen is quickly proven by means of the handle of the target carrier. The patient is instructed to watch the fixation point which is the exact center of the screen, while the operator stands at the side of the screen in such a manner that his black-covered hand may carry the target on the end of the carrier over the entire half of the screen nearest him and at the same time he can watch the eye of the patient in order to see that central fixation is maintained. The patient is further instructed to signify as rapidly as possible any motion that his eye may perceive in the periphery of his field of vision. The target is then held so that the white covered surface is turned toward the patient and slowly brought in from the periphery toward the center along one of the meridians. Short oscillatory motion should be given to the target in addition to the slow forward motion. As soon as the patient signifies perception of the moving object, the concentric is announced and is noted upon the visual field chart of a standard type by the nurse or attendant who stands behind the patient. The process is then repeated upon succeeding meridians until half of the field has been covered. The operator then steps behind the patient to the other side of the screen and continues the process until the entire form field has been taken and charted.

Taking the color field is slightly more difficult and tedious. The patient is now instructed to maintain the central fixation, but to announce the color of the target as soon as the perception thereof is reasonably certain. The operator assumes the same position as for the form field, but starts the target from about the 45 to 50 degrees concentric. The target follows any given meridian and any one of the three colors may be used, a change in color being effected merely by rotating the target carrier between the fingers and thus presenting a different face to the patient. The motion now is no longer oscillatory, but is merely a steady slow advance toward the center of the screen. The eye of the patient must be watched carefully as there is an almost irresistible desire to fix the target and bring the color into the line of central vision. As soon as the patient announces the color, the operator announces the concentric, both facts being entered upon the chart in colored pencil by the nurse. The target is then carried to the next meridian, but another color is presented and the procedure carried on as before. By varying the meridian under examination and the color presented, the patient is kept unaware of what color to expect and thus does not anticipate the actual perception of the color. With a patient of merely average intelligence, the entire procedure is carried out in a very few minutes, actually less time being required than to obtain similar data with an arc perimeter.

The original Bjerrum tangent screen was intended for use at two meters with targets of two millimeters in size and upwards. Later the same author advocated a smaller screen for use at one meter, but even this is too large for the average practicing ophthalmologist and the space at his disposal. True it is that, the larger screen has certain decided advantages in the more accurate delineation of the visual field, and isolated scotomata lying therein, but it is decidely cumbersome and unhandy. Futhermore, with the rapid decrease in visual acuity, as the target leaves the central field of accurate vision, the accurate outlining of a scotoma loses in intensity with a working screen distance of greater than seventy-five centimeters. This is particularly true of central field work.

Unless a screen is held in a rigid frame as was suggested by Duane rather than in the form of a loose curtain, there is apt to be a certain amount of flapping which is certain to district the attention of the patient from the more serious work at hand. This is of course, overcome by having the screen painted on a solid wall as described above. If the screen markings are carried to the fixation point, inside of the ten degree concentric, there is such a confusion of markings that the attention of the patient is bound to be distracted. Consequently it is advisable to have no screen marking inside of the ten degree concentric, even though this precludes the possibility of using the screen for the accurate delineation of central scotomata. The wall upon which the screen is painted must be of a dead black or as Ferree has suggested, a dead gray hue. Any reflection from the wall is sufficient to cause circles of diffusion that may be sufficient in intensity to vitiate results, apart from the rapid tiring of the patient by the glare. The markings of the screen must be sufficiently distinct to be seen at a glance by the operator, but still must be dead enough not to attract the attention of the patient. Ivory black oil paint, even though applied as a hair-line must be dusted with charcoal in order to eliminate the reflective qualities of the pigment.

The illumination must be constant in order to give the same comparative value. As the available daylight light in Chicago is somewhat of an uncertain quantity, not to mention quality, the above described scheme of illumination was resorted to. The lamps used are 50 watt daylight nitrogen bulbs which give a very fair approximation of late afternoon daylight and cause but little distortion of color values. With such lamps, brown appears as other than its true color, but brown plays no role in our visual fields taken for clinical purposes. Blue, green and red appear normal. The reflectors add greatly to the uniform distribution of the light over the screen and the combination of such reflector with the daylight nitrogen bulb gives an illumination that is not dependent upon external influences and does not vary from day to day or from year to year. This uniformity allows of a comparison of visual fields taken at intervals under unvarying conditions, thus permitting slight changes to be detected readily and without fear that such changes may be due to variations in conditions under which the field was measured.

For rapidity of work, which is one of the essentials of practical perimetry, the above described target has proven most satisfactory. It does not lie quite as flat against the screen as does a disc target, but the difference in elevation is so slight that it is negligible and is more than compensated for by the gain in time. For peripheral field work, the larger target of 10 mm. in size has proven the most satisfactory. It is practically impossible, even with a large target to outline an isolated scotoma in the periphery accurately and it is essentially for such scotomata that the smaller sized targets have proven so useful. Furthermore a difference in the form field of as much as ten degrees in the same patient can be brought out by the use of different sized targets. Inasmuch as the endeavor is to obtain the maximum peripheral perception of the patient in question, this can best be brought out by the largest target. The same holds true for color perception and even with the largest target, it is difficult enough to obtain an accurate color field unless the patient be of unusual intelligence. In view of these observations, the use of targets smaller than ten millimeters has been reserved for central fields or for special cases.

EXAMINATION OF CENTRAL FORM AND COLOR FIELDS.

By this is meant the field of vision that lies within the twenty degree concentric, but does not include accurate delineation of the blind spot which forms a separate chapter. The first practical instrument for rapid examination of the central tangential field was Peter's campimeter, but this has been superseded by the equally rapid but far more accurate stereo-campimeter of Lloyd. This is so well-known that a description of the instrument is not necessary, although some of the essential details may be mentioned. Binocular single vision is one of the requirements of the instrument; but if this is absent, the stereo-campimeter may be used as a single eye instrument where it fills the role of the Peter's instrument. Heterophoria is not a deterrant as this condition is taken care of by the inserted prisms, an understanding of which is necessary for the accurate results that the instrument can yield. If there be a large central scotoma of both eyes or an equivalent condition, central fixation can be obtained having the patient place the forefinger on the center of fixation and use the muscle sense for fixation. A good uniform lighting of the screen is essential and here as well as with the wall screen, artificial illumination is resorted to. In use the campimeter stands on a desk with the patient seated before it and the instrument inclined on its own axis to form an angle of about sixty degrees with the vertical. On the top of the desk is an ordinary, fexible arm lamp with a fifty watt daylight nitrogen bulb. The arm is so bent that it extends over the top of the instrument and the screen is uniformly flooded with light from an acute angle, thus eliminating reflection into the eyes of the patient and at the same time avoiding the direct incidence of rays into the patient's eyes. This method insures a uniform illumination at all times and under all conditions.

Before proceeding to the examination of the central field, it is necessary to assure of the binocular stereoscopic central fixation by the patient, unless there be some physical reason why such fixation is impossible. After comprehension of the necessity of such fixation, it is advisable to explain to the patient the procedure about to be undertaken in order to obtain as complete cooperation as possible. The examination should be attempted first with the smallest target provided, in white, and later in colors. If a central scotoma is found to be present, the target should be brought in from the periphery until the outlines of the scotoma can be delineated on the chart that accompanies the instrument. But if the scotoma is eccentric, it is preferable to start the target at the center and work outward until the margin of the scotoma is arrived at. The peripheric margins of the scotoma should be outlined by moving the target in from the periphery until the border of the scotoma is reached. It is not advisable to pass the target through the scotoma and record the marginal values thus arrived at for such a method will give not only a false record of the size, but will also tend to displace the area in question.

The main meridians should be tested with the smallest white target with the distinct understanding on the part of the patient that not only must disappearance of the target be looked for, but any alteration in intensity or saturation of the color of the target must be noted. An absolute scotoma will cause the target to disappear, whereas a relative scotoma will produce an effect of decreased color saturation only. This is just as important as complete disappearance and demands more careful further investigation. Should no abnormality appear upon searching the central field with the white target, the same procedure must be repeated with the essential colors: green, blue, red. Of these three the green is most apt to show an early disturbance.

EXAMINATION OF THE BLIND SPOT.

Careful delineation of the blind spot is of vital importance in the diagnosis of certain conditions, but this painstaking examination is not required in every case. A rough estimation of the approximate size of the blind spot may be made on the wall screen with the stereo-campimeter and such estimation is sufficient to determine whether further and more careful examination is necessary. But the accurate measurement of the blind spot cannot be made on either of these instruments. In many cases, it is sufficient to know that the blind spot is enlarged and knowledge of the shape and size of the enlargement is not essential; but on the other hand, finer points of diagnosis can be made only from the accurate delineation of the shape and size of the pathological blind spot.

For routine clinical use, the Lloyd stereo-campimeter offers the most accurate rapid means of measuring the blind spot. The smallest white target should be used and it should be brought from the periphery toward the area in question, entering about eight points of the circumference. This will give a sufficient knowledge of the size to determine whether further investigation is necessary. The use of the colored targets is not requisite and may lead to false conclusions for the blind spot is surrounded by a color blind area of from one to three degrees in width.

For careful study of the blind spot, the magnet scotometer, described some six years ago, is the most satisfactory instrument. This is used at a sixty centimeter distance from the patient and the total space required is only that of an ordinary deal kitchen table. At first, it was essentially a laboratory instrument, but continued use has led to the conviction that this instrument has a definite clinical place. It requires some space and considerable time, but the knowledge gained thereby is indispensable. The description of the instrument and its use have been published. There remains to say but a word regarding the illumination. Daylight nitrogen bulbs are used to advantage here also, but the arch frame used for the wall screen is not good because of the intense reflection from the white celluloid surface of the scotometer. Reading lamps, so turned as to shield the eyes of the patient from glare are placed in such position that the incipient rays form acute angles with the plane of the instrument. This provides a constant uniform illumination without variation and without discomfort to either patient or operator.

REPORT OF NEUROPSYCHIATRIC WORK AT CAMP DEVENS, MASS.

Lt. Col. L. Vernon Briggs, M. C. U. S. Army and Major Morgan B. Hodskins, M. C. U. S. Army.

The following is a brief summary of the neuropsychiatric examination of 170,478 soldiers at Camp Devens, Mass. There were rejected for neuropsychiatric causes 1,786 men. Their examinations were conducted from early in September 1917 until November 11, 1918. At first the examinations were under the charge of Major James V. May, but as Major May was called in an emergency to fill the place of Dr. Frost (deceased) as Superintendent of the Boston State Hospital, he was discharged from the service on September 28, 1917 and left the camp on October 7, 1917. Col. J. W. Hanner, the then division surgeon, on September 28, 1917, assigned Major L. Vernon Briggs (who was first ordered to Camp Devens on September 1st) as Chief of the Neuropsychiatric Service in the Camp and at the Base Hospital. Major Briggs was succeeded by Major Morgan B. Hodskins on July 4, 1918, when Major Briggs sailed with his division for France.

The classification of diseases used is the one furnished by the Department of Neuropsychiatry of the Surgeon General's office.

The first subdivision is that of Nervous Disease or Injury. Under this heading we rejected 389 men. As the accompanying table will show most of these rejections were for epilepsy. The diagnosis of epilepsy is by no means so hard as some imagine. If the patient on physical examination presented the characteristic mental symptoms of epilepsy and in addition had scars on various parts of the body and head caused by injuries while in convulsions, and if the tip and sides of the tongue were scarred, these symptoms were considered sufficient for rejection. If he claimed epilepsy and could show none of these signs he was observed in the neuropsychiatric wards of the base hospitals. The orderlies there were trained in the observation of convulsive attacks, particularly in disturbances of the tendon reflexes, and whether or not the pupils reacted to light during and after the attacks. In our experience the reaction of the pupils to light is the very best single test in the differentiation between epilepsy and hysteria. So far as we know the pupillary reflex to light is always absent in an epileptic attack and never in an hysterical attack. The other subheadings under Nervous Disease and Injury will readily explain themselves. The small number of cases of syphilis of the nervous system is no doubt explained by the ages of the men examined. They were rather too young to show tabes dorsalis and no doubt most of the frank cerebrospinal cases were rejected by the local draft boards.

Under the heading Psychoneurosis 249 were rejected. The cases of stammering were rejected at time of examination. The others were always observed for some time either in their organization or in the base hospital before they were rejected.

Psychosis: under this heading there were a total of 167 rejections. Some of these cases were rejected immediately as they came to Camp with a frank psychosis. Others developed after they had been under military training for some time. A psychotic individual does very poorly in the army. As soon as he is subjected to military discipline he usually breaks down.

Under the heading Inebriety there were 57 rejections. These rejections were made after the patients had been under observation for a few days and showed the well known withdrawal symptoms. The case listed as drug addiction, opium, was addicted to the use of camphorated tincture of opium. His statement was to the effect that he would take more than a pint of this a day and he certainly showed well marked withdrawal symptoms. Under the subheading of Chronic Alcoholism only 45 were rejected.

Under the heading Mental Deficiency as we would expect there were a large number rejected, a total of 813. These men were nearly all returned to their homes and no doubt are living there under the same conditions as before they were taken into the Army. We have no comment to make on this situation. It seems to us that comment is unnecessary.

Under the heading of Constitutional Psychopathic State there were 68 rejections. These men were only rejected after they had been tried out in their companies for some time and proved themselves so totally unfit for military service that it was necessary to reject them.

NERVOUS DISEASE OR INJURY

Epilepsy	261
Cerebrospinal syphilis	11
Congenital syphilis with nervous symptoms	1
Hemiplegia	7
Paraplegia	6
Tertiary syphilis with nervous symptoms	30
Multiple Sclerosis	9
Multiple Neuritis	10
Paralysis, Facial	4
Enuresis	8
Poliomyelitis, chronic	3
Sciatic Neuritis	3
Chorea	13
Migraine	1
Myotonia Congenita	2
Spinal Meningitis, chronic	1
Congenital Speech defect	1
Hereditary Tremor	2
Transverse Myelitis	1
Tabes Dorsalis	9
Hereditary ataxia	1
Facial Tic	1
Nystagmus	1
Hyperthyroidism	1
Brachial Neuritis	1
Destructive Lesion of Red Nucleus	1
Total	389

PSYCHONEUROSIS

Hysteria	133
Neurasthenia	64
Psychasthenia	12
Stammering	40
Total	249

PSYCHOSIS

Dementia Praecox (hebephrenic)	79
Dementia Praecox (Paranoid)	31
Dementia Praecox (Katatonic)	11
Dementia Praecox (Simple)	7
Psychosis Manic-depressive	25
Psychosis Traumatic	1
Psychosis Epileptic	1
Psychosis Alcoholic acute Hallucinosis	4
Psychosis Alcoholic Chronic Paranoid	1
General Paralysis of the Insane	6
Psychosis Toxic	1
Total	167

INEBRIETY

Drug Addiction (Morphine)	48
Drug Addiction (Heroin)	4
Drug Addiction (Cocaine)	4
Drug Addiction (Opium)	1
Alcoholism Chronic	45
Total	102

MENTAL DEFICIENCY

Mental Deficiency (Imbecile)	258
Mental Deficiency (Moron)	555
Total	813

CONSTITUTIONAL PSYCHOPATHIC STATE

Constitutional Psychopathic State (Inadequate Personality)	48
Constitutional Psychopathic State (Paranoid Personality)	11
Constitutional Psychopathic State Emotional Instability	4
Constitutional Psychopathic State Pathological Liar	4
Constitutional Psychopathic State Sexual Psychopathy	4
Constitutional Psychopathic State (Criminalism)	
Total	69

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Annual Meeting, Omaha, Apr. 24-27

A REPUBLICAN VALLEY NUMBER.

This number is issued complimentary to the Republican Valley Medical Association and the profession of the Tenth Councilor District.

The Republican valley medical association was organized at Oxford, June 8, 1904, by a coterie of western physicians who felt the need of a district society. The organizers were Drs. W. D. Shields, S. F. Sanders and P. A. Sundbury, Holdrege; Dr. E. E. Cone, of Oxford, (now in Colorado); Dr. J. W. Craig, of Axtell, (now in Montana); Dr. J. W. Andrews of Holdrege, (since deceased); Dr. J. N. Campbell of Stamford; Dr. F. A. Brewster of Beaver City; Dr. J. O. Hoffman of Orleans, (now in Iowa); Dr. W. B. Schreck of Bertrand; Dr. H. Hapeman of Minden; Dr. J. R. McKerihan, North Platte, (then of Minden).

Dr. W. D. Shields was the first president and Dr. E. E. Cone the first secretary.

It has been a real living organization since its inception and has met twice a year. Meetings have been held at Oxford, Minden, Alma, Holdrege, McCook, Hastings, Bloomington, Red Cloud, Arapahoe, Cambridge, and Orleans. In May 1921 the name was changed to, "The Republican Valley and Tenth Councilor District Medical Society."

The society has over seventy members and an endeavor is being made to include every eligible physician in the district in its membership. The next meeting will be held at Cambridge, May 25. Dr. C. B. Calbreath, Hastings, is president and Dr. N. T. Johnston, Upland, councilor for the tenth district, is secretary.

The first three papers in this number were presented at the meeting held at Hastings, November 10, 1921. The character of these papers justifies the compliment sought to be bestowed.

THE LINCOLN AMERICAN COLLEGE OF SURGEONS MEETING.

One hundred surgeons from outside points attended the first group meeting, Nebraska, Iowa, and South Dakota Section, of the American College of Surgeons at Lincoln, February 6 and 7. Whatever misgivings members and others may have had with reference to the possibilities of interesting clinics at Lincoln must have been quickly dispelled for there was neither dearth of clinican material nor lack of real talent and if any visiting surgeon came away dissatisfied with the clinics, there must have been something basically wrong with his internal economy. This and the Omaha meeting last year have demonstrated the standard of the Nebraska profession to those who attended from other parts; and comments overheard lead to the conclusion that we need not be ashamed of the showing made. A very nice feature was the proximity of the Orthopedic and St. Elizabeth hospitals where almost all of the clinics were given. The three operating rooms of the latter hospital were in constant use both mornings.

The hospital standardization conference developed the facts that much progress has been made in the last year and that fifty bed hospitals are now being standardized and that twenty five bed hospitals will later be investigated with the view of standardization.

The popular meeting at the auditorium attended by over two thousand people addressed by the Rev. C. B. Moulinier, S. J., president of the Catholic Hospital Association, and Dr. Franklin H. Martin and Dr. George W. Crile, officers of the American College of Surgeons, brought out forcibly what the American College of Surgeons and hospital standardization mean to those in need of hospital care.

The important cities of Iowa and South Dakota were well represented by Fellows at the meeting.

A COUNTY HOSPITAL: NOT A COUNTY FARM.

An interesting discussion occurred at a recent meeting of the Saline county medical society, the topic before the society being rural health centers. One physician advanced the proposition that the county poor farm, as we have it in rural Nebraska, is not an infirmary, although caring for some ill persons, and from the fact that accident cases occurring to the needy must be sent to hospitals at great expense to the county, (one recent case being cited which cost the county upward of $1200,) that it would seem wiser to dispose of the county farm holdings and apply that money toward the building of county hospitals.

County farms vary from 320 acres upward in size and in value probably from $50,000 upward. It must be admitted that this amount of money would go a long way toward providing the nucleus of a hospital in each county. The hospital idea is growing in popularity as we all know. Theoretically, the county hospital to which all practitioners of the county may have access, and to which, pay, as well as charity cases, may be taken, is correct. Practically, it does not seem to have stormed the popular mind, for, in Iowa where a county hospital law was enacted more than a decade ago, at last reports less than a half dozen counties had availed themselves of the act. For a number of years Washington was the only county to avail itself of the provisions of the act, and the political geography of the county is favorable, the city, Washington, county seat, being in the center of the county and the only considerable town in the county. Obstacles might readily arise in counties not so favorably situated in political relationships, or in counties that have well established private hospitals or hospitals established by religious bodies. A look at the map of Nebraska will convince anybody that not a dozen counties would likely ever avail themselves of the county hospital idea if we had a law similar to the Iowa law, and that therefore, much as we might wish the idea were possible of fulfillment, it must for a long time remain an iridescent dream.

AYE, THERE'S THE RUB!

"You cannot stop contagious diseases with a law, a health officer and a placard. You must secure the cooperation of the people by education, persuasion, organization."

You cannot readily enforce a law against an overwhelming popular sentiment. The difficulty in Nebraska lies in part in that we are endeavoring in a state 400 miles long and 200 miles wide, with a widely scattered population of one and a quarter million people, to apply the same regulations that are in force in the densely populated states of New York, Pennsylvania and Illinois.

THE RELATION OF THE LOCAL MEDICAL EXAMINER TO LIFE INSURANCE.

The human mind can comprehend numbers of considerable size but the numbers that represent the volume of present day life insurance are so stupendous that they are beyond comprehension and it is therefore futile to recite them. Primarily the function of a life insurance company is to protect the dependants of the insured from want when the breadwinner dies, and to provide against the time when one is unable to provide for himself on account of advancing age. However, modern life insurance companies have greatly broadened the scope of their activities, offering great variety in provisions of policy contract. One result has been that these companies have come to be the greatest trust companies in existence, exerting a powerful influence in the financial affairs of the world.

In the early experience of life insurance companies the professional knowledge of physicians was not employed at all, either as local examiner or as medical director. Later a medical advisor was attached to the company to whom certain cases were referred, which seemed to the officers of the company beyond their ability to properly estimate. The obvious advantage to the companies was presently realized and this resulted in the installment of the medical director as an officer of the company and the placing upon his shoulders the entire responsibility of the selection of risks, so far as the physical condition of applicants was concerned. It was not until a considerable time later that a personal examination came to be required in every case.

Now it is evident that the work of the medical director is of paramount importance. A large percentage of failures on his part would bankrupt the company. The very life of the institution is based upon the wisdom of his conclusions. His work expressed in medical nomenclature, consists in prognosis. The cases presented involve every possible combination of physical disability, past and present, in the applicant and his family. He has, therefore, opportunity for the exercise of the greatest medical knowledge, experience and judgment. We suspect that most readers of the Journal would be surprised, should they seriously investigate the matter, to find how little is contained in the whole of medical literature, of a dependable character, generalizing upon the end results of disease, a serious handicap in this particular work.

Owing to the complexity of the problems and their specialized character, the work of the medical director has come to be recognized specialty in medicine. For the study of these questions two associations, which meet annually, have come into being. These are the Association of Life Insurance Medical Directors and the American Life Convention. Aside from questions peculiar to life insurance much of great valeu to the profession at large has been accomplished by these associations. For example, more knowledge as to the significance of blood pressure has come from their studies than from any other source. Introduction of the use of the sphygmomanometer among the members of the profession is very largely due to the life companies.

Now, please note that the foundation of this whole stupendous structure is the work of the local medical examiner. Evidently the most efficient medical director must fail if the reports of individual cases are misleading. Almost all medical examiners are honest. Deliberate fraud is of rare occurrence. Too many physicians, however, regard this part of their daily work with indifference and in a perfunctory way make the examination and collect the fee. Life insurance is a fundamental economic interest. It is the greatest protection to society against physical misery and want. Loss of confidence in it, as an institution, would be a calamity. Its support by earnest and conscientious faithfulness in making examinations is worthy of the dignity and professional ability of the most accomplished physician.

These remarks are addressed especially to the above mentioned indifferent examiner.

—W. F. MILROY.

A MATTER OF OPINION.

Every now and then something is reported by some worker which he thinks is going to make either the diagnosis of some condition sure, or the treatment more satisfactory. Whatever it is that is reported, it is at once taken up by a number of men and used extensively for a time, and then most often forgotten. Other men who are wholly conservative condemn the work immediately, especially if it happens to be the result of laboratory work. Between these two types there is a class of men who neither condemn nor accept the work at first, but wait to see if it is really going to be worth while before they take it up. As a good example of this condition we have with us the Lyon-Meltzer method of diagnosis and treatment of certain conditions of the biliary tract. This process is under consideration by doctors of all three of the above classes. Some condemned it immediately without apparent reason; others took it up and are using it extensively, claiming splendid results and writing numerous papers praising the method. The men who waited for more information before adopting the process seem now to be coming into their own, as so often happens. A great deal of experimental work has been done and much of it seems decidedly unfavorable. In fact some of the work, especially that of Dr. A. D. Dunn seems to prove that Lyon's original conclusions were wrong and that the method as an aid to diagnosis is worthless. However, in treatment Dr. Dunn and others think that it is useful, but use a much simpler technique and get as good results.

This is the career of many things reported to us by enthusiastic workers. First the report, then time goes on, more work is done and the first report is either annulled or much modified, and the men who occupied the middle ground and said "not proven" are vindicated. To the writer it seems that this is the only safe course to take. Never to be to enthusiastic but always ready to accept what has become reasonably confirmed.

—R. B. ADAMS.

DEATH OF THE NEW BORN.

A New Year has opened, fresh thoughts and problems are confronting us, and demanding that we pause and consider them. If an inventory of the unsolved problems of medicine were taken at this time, one might easily become appalled by the seeming lack of progress.

Definite accomplishment has been made, however, along certain lines, and an attitude of pessimism is not in order.

Interesting conclusions have been formed, looking toward the cause of death in the first few days of life, and the prevention of cerebral paralysis in infancy and early childhood.

Work done by Rhodda of Minneapolis has demonstrated that the death of 50% of infants who die soon after birth is caused by cerebral hemorrhage. This hemorrhage is not necessarily due to prolonged or difficult labor, trauma, or the giving of pituitrin to the mother at the time of her labor. The causative factor was found to be an inherent one on the part of the infant, and due to a delayed coagulation time of the infant's blood.

It was also found that this delayed coagulation time could be improved by the intramuscular injection of whole blood into the infant.

The estimation of the blood coagulation time has been advocated as a routine procedure for each infant born, and if found to be delayed the early administration of blood is advised.

The early injection of blood will so increase a delayed coagulation time on the part of the infant's blood as to prevent further cerebral hemorrhage. This in itself will save infants lives.

If in spite of the blood injection, symptoms of cerebral irritation are manifest, an early resort to surgery, with a possible decompression or a turning out of the clot may change these hopelessly paralyzed infants into normal beings.

It is to be hoped that the trial of time will prove this work to be of great value.

—FLOYD CLARKE.

OMAHA BOUND.

The time for the Annual Meeting is now only a little over a month away, April 24-27, 1922 to be exact. Every member of the association should have, by this time, definitely decided to attend. One morning of the Programme is to be given over to clinics at the Omaha hospitals,—something that has not been done before by this association. From the plan as now arranged these clinics will add greatly to the value of the meeting. The remainder of the time will be taken up by papers by the members of the association, and the list is nearly enough complete at this time to promise a diversity of subjects such as will interest everyone. A number of men who have never read papers before the association have been secured and these with one or two men from other states will make a valuable programme.

In addition the local committee in Omaha is planning excellent entertainment for the evenings and other free times during the meeting.

All of this should make every member adopt as his slogan "OMAHA BOUND," and then live up to it. When you come bring every one with you that you can possibly induce to come.

—R. B. ADAMS, SEC-TREAS.

ANNUAL DUES.

The annual dues became delinquent Jan. 31, 1922. Many doctors have as yet failed to pay these dues and this is written to stimulate them. If you fail to pay your dues you not only lose your membership, but also your Journal. This Journal is getting better with each issue and compares favorably with the best of other states. Every doctor should feel that he owes his best to both the association and Journal and do all that he can to advance them. Send your dues to your county society at once so that your secretary can complete his report and thus keep the membership of the state association at a maximum. We must beat last years membership record.

—R. B. ADAMS, SEC-TREAS.

INEFFICIENCY DUE LARGELY TO IMPERFECT SIGHT.*

In a careful examination of ten thousand industrial and commercial workers, active in their work and supposedly in good condition, fifty-three percent showed defective vision uncorrected. It is an absolute fact that many employees are accused of inefficiency and carelessness when it is entirely a matter of imperfect vision.

The motion picture camera is made in imitation of the eye. The better the condition of the lens and the better the illumination of the object, the better the result of the photographers effort. Just so with the more perfect instrument, the eye. It behooves every one to see that his eyes are kept in good condition and free from eye-strain coming

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(*From the Eye Sight Conservation Council of America.)

from defects which may be corrected by glasses, or the strain due to improper lighting.

SAVE AND PROLONG THE USEFULNESS OF THE EYES.

A well-known specialist addressing a national conference stated: "For every blind person we generally can count from one to three who are what is termed near-blind, and a still greater number with markedly deficient vision. So we may continue to estimate until we come to what seems an almost universal lack of eye perfection.

"We shall better understand by the number of young men between the ages of twenty-one and thirty-one years who were refused entrance to the army because of deficient vision; so deficient that the glasses failed to bring it up even sufficiently for one drafted to be acceptable for limited service.

"Just as it is necessary for school children to be examined, so every individual between the ages of twenty-one and thirty-nine years should have the ocular state ascertained, as was done in the case of the army draftees.

"Early tendency toward the development of cataract may also occur during this period. Refractive errors (defective vision) when corrected lessen this tendency. Correction of defective eyesight, therefore, is a stitch in time, for it will save and prolong the usefulness of the eye."

EDITORIAL PARAGRAPHS.

The quarantining of venereal disease in Nebraska has become a reality; a case of syphilis was reported under quarantine early in February.

We read that one of the cults offered a thousand dollars to the girls to show their backs. Report says that many actresses and high school girls are evincing an ardent interest. And then we wonder where girls get certain notions. Interest shown by "the morals squad" might not be a bad thing.

Southwestern Medicine, representing organized medicine of Arizona, New Mexico and southwestern Texas comes to the Journal greatly improved in appearance and full of good things, including some fine cuts. We congratulate.

The annual Congress on Medical Education, Medical Licensure, Public Health and Hospitals, will be held at the Congress hotel, Chicago, March 6-10 inclusive. The delegate from Nebraska is Dr. Leroy Crummer, Omaha.

The Journal is informed that the paid up membership of the Nebraska State Medical Association for 1922, the middle of February was 804; that 45 counties had paid; that eight had not yet paid, among which number is one of the most populous counties in the state. It must be remembered that in the case of counties that have sent in dues, a number of stragglers always pay about annual meeting time, and swell the grand total.

In the registration area of the United States which includes 25 states or 82% of the population, 9106 deaths resulted from motor vehicles in 1920. This is a death rate of ten plus per hundred thousand.

The cause of the disabled American veterans of the world war will not down. Memorials sent to congress if but half true represent an appalling neglect of the disabled veteran.

WANTED: AN OLD-FASHIONED DOCTOR

(The writer of this very admirable little human interest poem told the editor that she is a graduate in medicine and a doctor's wife, trying to raise a family. Blessings be hers!)

Wanted: The old-fashioned doctor
Who takes more interest in me
Than he does in the 'isms I carry about,
Or, (can you believe it,) his fee.

Wanted: An old-fashioned doctor,
Whose heart is as big as his brain;
One who will come in the dead of the night
To relieve a few aches or a pain.

One who can see through his horn-rimmed specs
That in all probability I'm human;
And give me a few words of kindness, mayhap;
Called "nonsense," I think, by the New Man.

I'd wish him a face roundly ruddy,
And 'twere better a gros estomac',
With eyes very keen, very kindly,
Be they brown, or of blue, or of black.

I admire the learned young surgeon,
He's skillful and clever and a' that,
But I take off my hat to the old man in black
For his wisdom, his judgment, and a' that.

—Dora Bower Eckles.

CASE REPORT

Syphilitic Reinfection After Cure.

Miles J. Breuer, M. D., Lincoln.

The patient is a male, single, age 26, mechanic. He served in the U. S. Army Medical Department, and while in France, contracted a primary sore, which was pronounced clinically typical. A dark field examination was made, but he does not remember the result of it. While in the service, he received about eight intravenous injections of salvarsan, and was discharged with the understanding that he would have further attention to his case on his own account.

I first saw him in August 1919, when he had a weakly positive Wasserman, and clinically, constant, slight headache, and follicles in the pharynx. The clinical symptoms cleared up in about three weeks after three intravenous injections of neosalvarsan (o.6gm each), and potassium iodide to saturation. In November 1919 the Wasserman was still weakly positive, though there were no further clinical symptoms. As he was unable to visit my office on account of living too far away, he was placed on mercury inunctions. He attended very faithfully to his treatment. The inunctions were performed the first three weeks in every month, with a rest during the last week.

In march 1920 his Wasserman test was negative, three weeks after having ceased inunctions. Since that date there have been six negative Wasserman tests; the last two done in duplicate in our own laboratory and in the State laboratory; and one negative spinal fluid Wasserman. The spinal fluid was normal in cell count, globulin and sugar content, and negative in its reaction to colloidal gold solution. The blood Wasserman tests were performed at intervals of two months, and no treatment was given after March 1920.

In July 1921, I discharged the patient, telling him with the usual reservations, that as far as medical science could ascertain, he was cured.

A month ago, the patient returned with a sore on the foreskin. It had the typical appearance of a primary syphilitic lesion; but to palpation it did not have the characteristic induration. He seemed confident that it was a chancre, and I thought in order to be on the safe side, it would be best to make a dark field examination, though I was rather skeptical as to the utility of the test. Both in the serum from the sore, and from fluid aspirated from the inguinal glands, I found active spirochetes, which possessed the morphological characteristics of the treponema pallidum.

The patient has had two intravenous injections of silver-salvarsan of 0.3 gm each. The lesion was no longer open on the fifth day after the first injection, though a reddening and slight induration persisted. The lesion never had the characteristic induration of the primary sore. On the tenth day after the first intravenous injection only a red spot remained on the site of the lesion. No other treatment was given than a boric acid dusting powder.

CHRONIC SCLEROSING OSTEOMYELITIS

Arthur D. Kurtz, Philadelphia (Journal A. M. A., Feb. 4, 1922), reports a case of sclerosing osteomyelitis. There had been no trauma; but there was a history of many acute infections and one site of focal infection. The marrow cavity was completely obliterated except for a negligible area.

SURGICAL TREATMENT OF EXTENSIVE BASAL CELL CARCINOMA

In extensive basal cell cancers, in addition to cauterization and excision with a cautery, an important principle, in the opinion of J. Shelton Horsley, Richmond, Va. (Journal A. M. A., Feb. 11, 1922), is to apply as soon as possible, to the raw surface from which the cancer was excised, the raw surface of a pedunculated flap transplanted from a distance. It has formerly been thought that plastic operations for defects caused by extirpation of cancer should not be done until it had been determined, after the elapse of months or of years, that there would probably be no recurrence. The idea seems to have prevailed that it would be useless to transplant a flap when cancer might recur beneath it. With basal cell cancer, however, this practice appears to be erroneous, and a flap from a distance should be applied as soon as possible after the excision of the cancer, for the flap seems to add an additional obstacle to the growth of the cancer by interposing its own natural resistance to the cancer cells.

CHICAGO VENEREAL DISEASE INSTITUTE

The U. S. Public Health Service announces a Venereal Disease Institute to be held under the direction of the Illinois State Department of Public Health at the Congress Hotel in Chicago, March 13-18, inclusive. Courses in syphilis, gonorrhea, the problem of prostitution and delinquency, clinics and their management, clinic social work and methods of health education will be given. Special features will include daily noon-day luncheons and evening clinics.

The Institute at Chicago, like twenty others that are being held at central points throughout the country, offers the attractive educational features that characterized the All-American Conference on venereal disease that was held in Washington, D. C., during November and December, 1920. This regional plan for holding these institutes was determined upon when the suggestion of a second conference at Washington stimulated nation-wide interest and it was apparent that hundreds of people who wished to attend would be obliged to make long journeys at considerable cost. The Chicago Institute offers even greater possibilities for this section of the country than would a national conference at Washington, since the same high standard of instruction will prevail and the relatively smaller number in attendance will make for a closer relationship between those in attendance and the instructors.

An invitation is extended to all physicians and especially those who are particularly interested in venereal diseases. Those who plan to attend are urged to register at once. Registration cards and programs may be obtained upon request from Dr. I. D. Rawlings, Director of Public Health, Springfield, Illinois.

THE SOCIETIES.

The Twelfth Councilor District Medical Society was organized at Scottsbluff, January 18, with Dr. Minor Morris of Alliance, president, Dr. George J. Hand, Alliance, secretary-treasurer. Dr. A. C. Schoch read a very interesting paper on "Hemorrhage," and Dr. Minor Morriss one on "Evolutionary Anatomy." It is regretted that Dr. A. J. Stewart, Councilor, was not able to be present at the meeting of organization.

January 24, the Lincoln County Medical Society elected Dr. T. J. Kerr, president, Dr. J. R. McKirihan, secretary-treasurer, and Dr. J. B. Redfield, delegate.

The Cass County Medical Society met at Weeping Water, January 20, and after a round table talk, elected Dr. E. H. Worthman, Louisville, president, Dr. O. E. Lister, Elmwood, secretary-treasurer and Dr. M. U. Thomas, Weeping Water, delegate.

The Cuming County Medical Society re-elected Dr. T. D. Thompson, president, Dr. F. J. Kotlar, secretary-treasurer, and passed a resolution requesting the county chapter of the Red Cross to dispense with the services of a Red Cross nurse. Why is this, thus?

At its regular meeting Feb. 4, 1922, The Lancaster County Medical Society, entertained Dr. C. G. Grulee, professor of pediatrics at Rush medical college, Chicago. After a dinner at the Lincolnshire club, the society adjourned to the Orthopedic hospital, where Dr. Grulee gave an address entitled "Pyloric Stenosis and Pylorospasm." He outlined the symptoms of both conditions and laid emphasis on the fact that there were no pathonomonic symptoms in either condition, but that in order to make a diagnosis the patient must be studied as a whole. His treatment, of course, was surgery for pyloric stenosis. For pylorospasm he described his method of gastric lavage and a diet of albumen milk as the best method of handling the patient. Dr. Grulee used lantern slides throughout to illustrate his points.

HOSPITAL NOTES.

Dr. C. E. Lewellen has leased the Bayard General hospital building and equipment and has moved in and taken charge.

The Overland Cottage hospital in charge of Miss Daisy Kelly, R. N. formerly of Omaha, is a new institution at Scottsbluff.

The General hospital and Evans hospital, Columbus, have been merged, the General being discontinued and the Matzen sisters who formerly conducted the General, have taken charge of the Evans hospital, the name of which has been changed to Columbus hospital.

A plan to finance the Taylor E. Lewis memorial hospital, Superior, by selling 500 service certificates, good for a week's service in the hospital for $12.00 is reported. This memorial was established with insufficient endowment and has been in financial distress for some time.

The late home of the Hon. William Jennings Bryan at Lincoln has been offered to the Presbyterian church for use as a hospital for missionaries and teachers and their families who have been incapacitated in service in the Far East; but the offer was not accepted.

NOTES ABOUT THE DOCTOR.

Dr. E. C. Lynch, formerly of Valentine, has located at Litchfield.

Dr. Ralph D. Green, formerly of Beaver City, has moved to Holdrege.

Dr. B. A. McDermott, Omaha, is reported ill, from gastric hemorrhage.

Dr. W. T. Hurst, Broken Bow, has become county physician of Custer county.

Dr. and Mrs. C. W. Hull, Omaha, made a mid-winter trip to the Pacific coast.

Dr. H. M. McClanahan, Omaha, returned from a California trip early in February.

Dr. E. E. Koebbe, has become a member of the Evans clinic, Columbus, as OALR.

Dr. E. C. Rice, formerly of Omaha, has located at Odell, succeeding the late Dr. M. F. Sigler.

Dr. G. W. Earle formerly of Torrington, Wyo., has succeeded Dr. George O. Dunseth, at Miller.

Dr. Edward Sayre, formerly of Chicago, has become associated with Dr. C. J. Verges, Norfolk.

Dr. W. Y. Jones, physician in Wynot community before there was a town and since, has located at Ponca.

Dr. Robert Nichols, Dundee, was the victim of a hold up recently by which almost $500. worth of valuables were lost.

Dr. E. A. Whitehead, Holdrege, has retired from the practice of medicine and it is reported will engage in life insurance.

Two Lincoln physicians have been sued for malpractice. The amount claimed is $15,500 and the claim hinges on a confinment case.

The Nu Sigma Phi sorority of the Nebraska college of medicine at a party given February 7, was entertained by Miss Fuller, superintendent of the Methodist hospital on the subject "Interneship from the Superintendent's Standpoint."

Dr. Claude W. Mason, after visiting in Omaha for some time, has returned to his field of labor as medical missionary at Kiu-Lung-Kiang, Yunnan, China, and the Nebraska State Medical Journal keeps him in touch with Nebraska medicine.

A Cozad doctor, who incidentally is police judge of the burg, has come in the lime light as an expert in the art of self defense, having thoroughly threshed a man who came to the office and objected to the doctor-judge's sentence imposed on a relative.

NECROLOGICAL.

Dr. Marion F. Sigler, Odell, Creighton medical college, 1916, medical officer of the World War in France, died of scarlet fever, January 20, age 30.

Dr. A. K. Detwiler, Omaha, Univ. Pa., 1894, assistant professor of medicine in the University of Nebraska college of medicine, died of cerebral hemorrhage, January 30.

Dr. A. L. Macomber, many years a practitioner of Norfolk, dating back to the time when the doctor lariated his service pony on the vacant lots to graze, died in Rochester, N. Y., Jan. 20, aged 77. He was a veteran of the civil war and a graduate of the N. Y. Homeopathic medical college, 1872.

Dr. Frederick Renner, a pioneer physician of Nebraska City where he located in 1856 and practiced medicine for thirty-six years, founder and for many years editor of the "Nebraska Staats Zeitung," member of the Nebraska territorial legislature and of the constitutional convention of 1864, captain of the Nebraska militia during the Indian campaigns from 1862-64, collector of internal revenue 1867-70, first president of the Nebraska territorial pioneer's association, died at the home of his daughter near Fairbury, February 8, aged 92. He was a graduate of a Paris medical school.

Dr. J. F. Stong, Barada, Keokuk medical college, 1900, dropped dead February 7.

Dr. Joseph MacDonald, New York City, managing editor and publisher of the American Journal of Surgery, and copublisher of the Medical Pickwick, died suddenly in his office January 7, of cerebral hemorrhage. All his adult years were spent in medical journalism.

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THE MODERN MEDICAL TREATMENT OF GASTRIC ULCER.*

Frank Conlin, M. D., Omaha, Neb.

Upon the subject of gastric ulcer an immense amount of literature has accumulated and every country has a host of authors who have contributed to it. In the last ten years important research along the lines of the physiology of the stomach have helped us greatly, not only in interpreting the symptoms of the condition, but also in advancing our knowledge of the methods of medical attack.

HISTORY.

Ulcer of the stomach, was undoubtedly known to the ancients (1). Celsus (1) mentions the disease and describes an appropriate treatment for it. In the 16th century it began definitely to attract attention and records of many cases are available from that time on. It is indefinitely mentioned in the writings of Ambrose Pare (2) and others in the seventeenth century. Cruveilhier(3) in 1829 first thoroughly investigated the subject and described in detail the appearances, clinical history and rational treatment of the disease.

Most of our knowledge of the disease, however, has been developed in the last twenty years. The diagnosis has been rendered more precise and recent developments in the examination of gastric contents chemically, and of the stomach by X-ray and other methods have added greatly to our methods of treatment. The mechanism by which the pain of ulcer is produced has given rise to considerable discussion during the past few years, and, although a general agreement has not been arrived at, certain conclusions have been reached. In this paper, however, we will consider nothing but the treatment of peptic ulcer, and coming down to the present date will first consider the types of peptic ulcer amenable to medical treatment,

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*Read before the Omaha-Douglas County Medical Society, April 26, 1921.

(1) Cases that have not perforated.
(2) Cases without perigastric abscesses.
(3) Cases in which we are sure that there is no secondary carcinoma.
(4) Cases in which we are sure that there is no hourglass or other serious deformity.
(5) Cases in which there is no hemorrhage of a very serious nature.
(6) Cases in which we are sure that there is no organic pyloric obstruction.

These are cases considered by Sippy (4) to be the ones in which surgery is indicated. All other types of peptic ulcer are amenable to medical treatment.

Rosenow (5) first showed that intravenous injection of streptococci of the proper grade of virulence may produce gastric or duodenal ulcer, due to local infection. Taking into consideration the close resemblance the bacteria cultivated from these ulcers bear to some strains of streptococci grown from the tonsils, teeth, sinuses and other tissues, Rosenow concludes that gastric ulcer may be caused by the streptococcus, and that its entrance is not due to the swallowing of the bacteria but by the entrance into the blood of bacteria of the proper grade of virulence. With this idea in view the medical management of gastric ulcer first begins with the proper removal of foci of infection. I realize, however, that the last few years focal infection has been blamed for a great many pathological conditions and although Rosenow's experimental work seems convincing still our knowledge of the clinical course of ulcers is not sufficiently strong to warrant our removal of all tonsils, and draining of all sinuses that may possibly be infected in a given ulcer case.

TYPES OF TREATMENT.

Certain advances have been made in the medical treatment of peptic ulcer. According to the older plan, Leube's Treatment was almost constantly followed. This consisted in placing the patient at complete rest in bed for fourteen days or more upon a fluid diet, mainly milk. On such a diet the patient frequently lost much flesh as well as strength.

On this account Lenhartz, believing that ulcer of the stomach is most frequently accompanied by hyperacidity and also an enfeebled condition thought it best to give protein food early to overcome the acidity as well as build up the bodily strength. Lenhartz based his views of the treatment of gastric ulcer on the theory that the ulcer is prevented from healing because of the mechanical stretching of the organ, hyperacidity and anemia, and he opposed the main idea of abstinence cures because he regarded milk alone as an inadequate diet inasmuch as the anemia was thereby increased and, if the quantity of milk was increased sufficiently for the bodily needs, stretching of the stomach ensued. He therefore advocated (1) the administration of concentrated albuminous food to combine with the hydrochloric acid and prevent its unfavorably acting upon the ulcer; (2) the rapid increase of nourishment to repair lost strength and thus indirectly aid the healing process; (3) absolute rest in bed and prevention of the distension by means of ice bag, etc., for the first ten days; (4) bismuth subnitrate 30 grs. each day, with fluid diet; (5) Morphine to be used in the first twenty-four hours in extreme pain.

Lenhartz's diet consists of fresh eggs as the main article of diet, given in increasing quantities each day until eight are taken daily. These are given iced in teaspoonful doses. Later soft boiled rice is given and on the eighth day toast, softened rusk, or cereals and 40 grams of butter, on the tenth day finely divided raw ham.

The third line of treatment, that of Bertram W. Sippy (6) (7) consists in the adequate protection of the ulcer from gastric juice corrosion until healing takes place.

The principles underlying the ulcer problem as stated by Sippy center about three fundamental, points:

1. What are the causes of peptic ulcer?
2. What retards or prevents the healing of peptic ulcer?
3. What can be done to promote the development of granulation tissue esential to the development and final cicatrization of the peptic ulcer?

It is generally recognized that peptic ulcer is due to malnutrition of a certain area of the mucosa which causes it to lose the normal resistance to the peptic action of the gastric juice. Pepsin is the digestive agent of the gastric juice which acts only when the tissues have been sufficiently permeated with hydrochloric acid and has no action on the gastric mucosa in the absence of free acid. Hence, according to Sippy, the solution of the problem lies in keeping a neutral reaction in the stomach. This neutralization is accomplished by frequent feedings and the use of alkalies in carefully regulated quantities from 7:30 in the morning until 10:00 at night. Cal. Mag. Gr x, Sod. Bicarb. Gr x, alternating with Cal. Carbonate Gr x, Sod. Bicarb. Gr xxx. Sodium bicarbonate is used where the acidity is not too high. When the acidity is high calcium carbonate is used as it has about four times the neutralizing power of soda.

Treatment consists of (1) rest in bed three to four weeks, or longer.

(2) Three ounces equal parts of milk and cream every hour from seven in the morning to seven at night.

(3) One soft egg and three ounces of cereal three times a day. Cream soups, vegetable purees and eggnog may be added after three days. These are added gradually until at the end of a week the patient is taking 3 oz. of milk and cream mixture every hour from seven A. M. to seven P. M. and in addition two or three soft eggs, one at a time, and six to nine ounces of cereal, three ounces at a feeding.

(4) Between feedings, from 7:30 A. M. to 7:30 P. M. powders of calcined magnesia and sodium bicarbonate and bismuth subnitrate are given alternately, the feeding on the hour, the powder on the half hour. The excess night secretion which sometimes occurs from 9 to 11 P. M. is removed by gastric lavage.

Einhorn has recently devised an ingenious way of caring for those ulcers of severe type accompanied by excessive nausea and vomiting. By his method liquid food, consisting of milk, sugar and raw eggs in amounts of 100 cc. is introduced directly into the duodenum through a duodenal tube every two hours, beginning early in the morning and stopping late in the evening. If eight feedings are given in 24 hours and each feeding consists of 280 cc. of milk and one tablespoonful of milk sugar, the patient will receive 2280 calories, ample for the average case.

These, then are the accepted lines of medical treatment for gastric ulcer ordinarily employed at the present time. According to the observations of Freidenwald cures were obtained in 72% of cases by the Leube cure, 66% by the Lenhartz method, and 86% by the Sippy method.

Smithies (9) in considering the etiology of gastric ulcer with the idea of formulating a treatment based on the etiology and pathological physiology finds that at least 85% of gastric ulcers occur in the pylorus, in the antrum, and along the distal three-fifths of the lesser curvature. He also notes that two-thirds of the ulcers occur in the portion of the stomach whose mucous membrane is not devoted to the elaboration and secretion of hydrochloric acid but that the majority occur in that part of the stomach in which the greater muscular and neurological activity is manifest.

In a recent study of five hundred cases of peptic ulcer in but 40 percent did he find hydrochloric acid concentration above .3 per cent, in 35 per cent the acidity was well within the normal range, and in the remaining 25 percent the acidity was absent or markedly reduced.

Carlson working at the University of Chicago laboratory has made similar observations experimentally and Rehfuss and his coworkers have made similar observations clinically.

"With these facts in mind," Smithies says, "It seems strange that the treatment of gastric ulcer has so long rested upon a chemical foundation. It has been presumed that the pain of gastric ulcer was caused by corrosion of the mucous membrane by the gastric juice." (Smithies).

Pawlow, Rehfuss, Hertz, Hamberger, and others have demonstrated that pain is not uniformly present when acidity is highest and that in a number of ulcer cases a high percentage of acidity fails to produce pain.

"The explanation of the mechanism of the production of pain in gastric ulcer has been shown by a variety of ways to be due in all probability to increased tension on the walls of the stomach from increased intragastric pressure." Carlson (10).

Carman at the Mayo Clinic has also demonstrated this fluoroscopically.

According to Friedman (11):

1. There are typical ulcer pains after ulcers have healed, leaving only scars. This particularly in duodenal ulcer.

2. There are typical ulcer pains in achylia gastrica as pointed out by Einhorn long ago.

3. It has been repeatedly shown and recently very clearly by Crone that clinical improvement may take place with complete disappearance of pain, yet hyperacidity persists unaltered.

According to Friedman hyperacidity is probably a result and not a cause of ulcer. Treat the ulcer and the hyperacidity will take care of itself.

Smithies has shown that carbohydrate foods leave the stomach quickly on account of their failure to unite with the acid gastric juice. On account of this failure to unite they permit a large amount of free acid to come in contact with the pyloric sphincter and thus produce a rapid opening of the pylorus. Protein leaves the stomach slowly because proteins join readily with the hydrochloric acid and thus for a time retard the development of free acid which initiates the pyloric relaxation. According to Smithies protein causes the secretion of 50% more gastric juice during the first four hours of digestion than when carbohydrates are given. When such protein is passed into the duodenum there is more acid to neutralize; consequently the pylorus remains closed for a longer time, and the stomach is subjected to more intense peristaltic activity without pyloric relaxation.

Smithies' Treatment: Basing his conclusions upon these physiological facts Smithies has elaborated a type of treatment which consists of

1. Rest for three weeks.
2. Local applications to the abdomen.
3. Fasting of patient for the first 24 to 48 hours during which time the patient is allowed to chew paraffin wax and is given by rectum five hundred to a thousand calories of a nutrient mixture consisting of one ounce of fifty per cent alcohol, and one ounce of glucose with normal salt solution to make 240. cc.

On the second day mouth feeding is begun, and accordingly two factors control the choice of diet: first, nourishment should be liquid and frequently administered, warm, and in small quantities in order that the stomach may empty rapidly with the least effort.

As his experiments have established that carbohydrates leave the stomach most quickly, liquid carbohydrate mixtures such as barley water, rice gruel, thin cream of wheat, thin cream vegetable soup, and so forth are given. He states that large quantities of alkali are unnecessary and quotes Pawlow, Hamburger, and others, in stating that the alkali although it may neutralize the acid present at the time, stimulates and causes a hyperacidity later and hence overalkalinization may prevent healing. He controls hyperacidty by calcined magnesia in small doses and atropine or Tr. belladonna. Accordingly to Friedman (11) the value of alkalies in the treatment of ulcer is overestimated. They do not promote healing directly by neutralizing the acidity but do so by retarding peristalsis, relaxing the pylorus and thus placing the ulcer at rest.

Smithies has used this treatment for the past eight years and believes it to be the one based upon our modern ideas of the physiology of the stomach.

WHEN IS AN ULCER CURED.

When there is a long period of freedom from symptoms combined with normal gastric function, absence of blood in the stool, and a complete change in the appearance of the ulcer on X-ray examination, that is, the crater of the ulcer has filled, and there is normal peristalsis and no spasm or hourglass contraction. When an ulcer reappears after the presence of such findings we are justified in calling it a new ulcer. Many ulcer cases do not recover because treatment is not sufficiently prolonged. In severe cases the patient should be put to bed for some six to eight weeks and Sippy insists upon following the patient for months afterwards, the patient continuing the treatment at home.

Gastric ulcers are essentially chronic and this should be carefully explained to every patient. Most of the failures in the treatment of gastric ulcer are due to failure in following up these patients for months afterwards and carefully protecting the stomach from irritation for that time. X-ray examinations should be made frequently to watch any changes that may take place in the old ulcer scar. Stools should be occasionally tested for blood, at intervals of three or four weeks for the first few months after treatment, and then at intervals of four months for a year or two. This applies also to cases of ulcer that are treated surgically for as White says, the ulcer case with a gastroenterostomy or excision is "damaged goods" and needs help after operation for weeks or months. (12)

In conclusion, I believe that medical treatment properly used with the new and more exact methods we now have for diagnosis and observation will cure a large proportion of the ulcers we see. The cases, however, must be chosen with care, and one should remember that there is always a good sized group of cases which cannot be cured permanently by medical means.

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CONSERVATION OF HEARING.*

C. G. Baird, M. D., Beatrice, Nebr.

As aurists we can best serve our purpose if we practice and teach conservation rather than restoration of hearing. Conservation of hearing is a matter of education, and this education, must include the profession and the laity. Children being the more easily taught we should begin with them, using our public schools as a means of bringing all apparent defects before the parents and family physician, not neglecting the children under school age.

Variations from the normal nasal anatomy that cause any deviation in the currents of air as they pass in and out through the nose, should be regarded with suspicion. So must the indiscriminate correction of every minor deviation from the normal, be looked upon with suspicion. The correction of these variations from the normal when they obstruct drainage, or the passage of air currents must be done as early as possible if we would practice conservation of hearing. Any operative work must be done without impairing the future development of the nasal anatomy.

Disease or infection of the accessory sinuses may cause a loss of hearing and should always be corrected. Enlarged lymph glands as seen in tuberculosis, leukemia and acute infections, may also impair the hearing. Peritonsillar and retropharyngeal abscesses, impacted cerumen, and foreign bodies in the external meatus may cause a loss of hearing. Adenoids and tonsils are common causes. One of the most important causes is acute otitis media and of this I will speak in some detail. Diseases or affections such as measles, scarlet fever, influenza, diphtheria, tonsillitis, acute coryza, and kindred affections cause irritation, swelling, and increased vascularity of the mucosa of the nasopharynx, Eustachian tube, and middle ear. The lumen of the Eustachian tube is always narrow and although it varies greatly in the individual the least swelling is capable of obstructing it. This obstruction prevents drainage by this route from the tympanic cavity. In acute otitis media the more abundant secretion from an irritated mucosa, unable to escape by this natural route, is a favorable culture medium for the pyogenic bacteria some of which are to be found inhabiting any healthy mucous membrane. This pent up, accumulating, infected secretion rapidly fills the middle ear and the mastoid antrum causing pressure. Nature's two best defenses against infection are an abundant blood supply and adequate drainage. The pressure compresses the capillaries, arresting or retarding the circulation of the blood. Pressure on the nerve endings in the mucosa causes pain. With the natural drainage route, the Eustachian tube, closed and a retarded circulation because of the pressure, necrosis and perforation of the membrana tympani follow as a natural sequence. Again the perforation may come only as the result of pressure. We now have a well developed otitis media, or discharging ear, as the condition is so often called. At this stage the discharge may be serous, seromucoid, or purulent in character. The early stages of this disease as observed in the first few weeks are, or should be, the most interesting to us, because in this period we can do the most good. During these first days or weeks we have the best chance of limiting the disease and conserving the hearing. In a great majority of these cases we can do this with or without an operation, long before any of the so called dangerous symptoms arise. The old policy of waiting for the more alarming symptoms that may develop later in the disease, without making daily observations and repeated hearing tests, is to be discarded. The more rational policy will be outlined in the treatment of these cases. An otitis media that has been allowed to continue for two or three months always causes some loss of hearing. Those cases which recover spontaneously, or under treatment with no apparent loss of hearing, usually do so in the first two weeks, very rarely after one month.

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*Read before the Nebraska State Medical Association, May 9-12, 1921

Knowing as we do that the small cells communicating with the mastoid antrum usually do so through very small openings, it is easy to see why the disease, if not arrested in the early stages, runs such a long drawn out course, and infection takes place. Also, why in cases where the membrana tympani perforates or is incised late, we are more apt to have a mastoiditis develop. When infection is well established in these accessory cavities of the antrum, the mastoid cells opening into the antrum, the only way of escape for the increased amount of pus is through the antrum, and the narrow chanels of the aditus and attic, through the perforated or incised membrana tympani. The mucosa along this route is irritated and swelling takes place. The points of this swelling are of great interest to us, because of the interference with drainage and impairment of hearing, and are mentioned later. The two most important factors in the control of the infection, while we are waiting for a spontaneous recovery, are blood supply and drainage. Given free drainage and an abundant blood supply, nature will usually effect a cure. Lack of blood supply and poor drainage can be demonstrated in all these cases that come to operation. Drainage in these cases through the narrow attic and tympanum is always partially blocked. These two conditions not only prevent spontaneous cure of the disease, but the surgeon's action must be based upon their recognition else there can be no uniformally effective treatment. The degree of swelling of the mucosa as indicated by pain, deafness, and vertigo is the most reliable early guide as to the extent nature cân control the disease. The course of the disease does not always depend on the nature of the infection. If the attic is large and the drainage free, many cases clear up in short time. If the attic is small, the drainage from the antrum and adjacent cells will be impeded, and recovery with a minimum loss of hearing is improbable without operative interference.

Another point that should be mentioned at this time, is the wide difference in the perforability of the membrana tympani. Some perforate early without pain or pressure, others resist perforation and the consequent damage to hearing is marked unless incised early. The more impervious this membrane is, the greater the pressure in the middle ear. Any delay in perforation, which allows the infection to become well established, increases the liability to deafness through irreparable injury to some essential part of the tympanic apparatus.

Until very recently we did not take into consideration the position and importance of the swelling in the tympanic mucosa as present in every case of otitis media. The swelling is most marked early in the disease and it is this early development that we are interested in, for at this point, if we act promptly, we may arrest the disease and conserve the hearing. In otitis media the whole mucosa lining the middle ear is swollen. Charles J. Heath has pointed out that this swollen membrane may obstruct the drainage. These areas he calls dams and as I spent some time with him in London I shall use his description. These dams have an important effect on the condition and though we cannot see them, their presence can be recognized by accurate observation of symptoms.

First: The eustachian dam is formed by the swelling of the mucosa, the narrowest point being the isthmus, is the positive location. When this dam is complete, the increasing pressure from the accumulation of the secretion usually causes perforation of the membrana tympani unless incised. That this dam exists can be proved by our inability to force air into the tympanum by any method of inflation. Many times it is incomplete, at other times it absolutely resists any method of inflation.

The second is the tympanic dam. The position of this dam varies according to the perforation. When complete it prevents lotions forced into the tympanum through the meatus and the perforated or incised membrana tympani as well as the septic antral discharge from passing into the Eustachian tube. The dam usually extends far enough from the promontory to reach the membrana tympani, the handle of the malleus, or the descending limb of the incus. It will interfere with the vibration of these structures and cause more or less deafness. Unless the Eustachian dam is absent or incomplete the completeness of the tympanic dam cannot be demonstrated but an estimate of its thickness can be made by the loss of hearing it causes.

Third: The attic dam is usually formed by the swelling of the mucosa over the smooth convex inner attic wall. The dam is situated on the inner side of and usually in contact with the body of the incus and head of the malleus. The natural drainage from antrum and attic passes down to the tympanum inside the bridge of bones, between the malleus and incus and the smooth inner attic wall. At times the middle ear secretions under pressure, force their way outside the neck of the malleus and perforate Shrapnell's membrane. In these cases the attic dam is complete. For if this pathway is blocked, we usually have a mastoiditis developing promptly. In using the aditus cannula at the time of operation this attic dam may be demonstrated. At the first post operative dressing you can usually demonstrate that this dam has disappeared or is incomplete, by forcing air or fluid through to the perforation. Also the Eustachian dam usually begins to disappear, as shown by the patient's ability to inflate by Valsalva's method. Nature removes these dams, made up of swollen mucosa, as soon as drainage is established.

The great questions are, when is the tympanic hearing apparatus in such danger as to justify operation? What are the reliable tympanic symptoms which call for operative interference to save hearing? As we cannot see what is going on in the middle ear, we must judge from symptoms. Discharging ears should be examined and tested daily, and the observations recorded on a card or chart. If this card shows the disease is progressing or that there is no improvement for several days, then a mastoid operation is indicated, if we would conserve the greatest amount of hearing.

Patients suffering from acute otitis media, or mastoiditis, should if possible be placed in a hospital, always in bed. The diet should be liquid or light. Catharsis should be free, usually salts give the best results. Hot baths, not too prolonged, are useful in the early stages. The ears should always be covered and a hot water bottle applied to the affected ear. The water should be changed at least every hour, if you expect to get the full benefit of the heat applied. If the air is dry, as in most of our steam heated hospitals, inhalations of compound tincture of benzoin (steam) is of great benefit and aid in clearing up the congested mucosa of the upper air passages. Incision of the membrana tympani should be done early not always waiting for the bulging, which is not a constant early sign. In cases seen early in which the congestion is not severe, and the inflammation is more tubal in character, the use of the mixture.

Adrenaline chloride	Drams I
Cocaine mur.	Grains V
Morphine sulphate	Grains II
Phenol	Minim I
Glycerine	Drams I
Aquae dest. q.s. ad.	Ounces III

on cotton plugs inserted into the meatus will prove of benefit in many cases. Always combine the above treatment with the application of an astringent around the mouth of the Eustachian tube and nasopharynx. As soon as the congestion is severe a free incision of the membrana tympani should be made using a cross incision where one incision shows too great a tendency to close. From this time on, if I have a competent nurse trained to take care of these ear cases, I prefer not to syringe them out but to use cotton plugs in the external meatus changed as often as they become moistened. As most of our cases early in the disease are taken care of in the homes and are cared for by untrained help, I have the ear irrigated every hour or two hours with a solution of alcohol and saturated solution of boric acid, equal parts diluted with sterile water. The temperature of the water should be as hot as the patient can tolerate with comfort. This irrigation is given without pressure and only for the purpose of cleansing the meatus. This irrigation must be done carefully and preferably with a fountain syringe the height of the container not over three inches above the ear. Much harm can come from forcing fluid into such an ear under pressure and unless one can be sure that syringing will be done without pressure, it had best be omitted, depending on daily cleansing by the surgeon. Oils and powders in the meatus only obstruct the outward flow of the pent up secretions and make the daily inspections more difficult. Opiates should not be administered as they obscure the symptoms and in this manner might delay too long an operation that would otherwise conserve a greater amount of hearing. Adenoids that are obviously obstructing the drainage from the Eustachian tube should be removed. Correction of other pathology of the upper air passages should be the routine where feasible. If given early, a stock vaccine or better an autogenous one may be of benefit. In cases where the infection is of one predominating organism, the vaccines are usually more efficient. Daily hearing tests should be made as well as an inspection of the external meatus and membrana tympani. If in spite of treatment, the hearing decreases, the patient complains of pain and vertigo, an operation is indicated if you would conserve the hearing as well as save life in some cases. Where the severe pain and vertigo continue for any length of time, no one hesitates to operate. It is only in the cases where the patient apparently is doing well that we hesitate. In these cases we should be governed by the symptoms resulting from the amount of swelling of the mucosa in the tympanum. If the swelling is not sufficient to obstruct drainage, there is usually no pain or marked deafness. If the swelling is so great as to completely obstruct drainage, we usually have severe pain, and the always present guide, the increased deafness. Cases in which the discharge persists for a long period, with few or no symptoms that demand operative interference, are the ones in which we err most often.

In all cases of otitis media our constant thought should be the conservation of hearing and our efforts can best be directed to this end by careful daily examination of our patients.

DISCUSSION.

Dr. Earl B. Brooks, Lincoln: It is said four-fifths of our cases of acute suppurative otitis media recover within a month, so naturally we have to do with the remaining one-fifth. It is not an inconsiderable number. Owing to lack of knowledge of changes taking place in the early stages, tens of thousands of people lose their hearing every year. As intimated by the doctor, in cases which persist more than two or three months, we should not expect the hearing to return to normal.

I think we should commend Dr. Baird in presenting to us at this time this very practical paper emphasizing the pathology of acute otitis media, and the value of repeated hearing tests in these cases.

In 1917, at Brest, I had the pleasure of observing with Dr. Baird a series of cases of otitis media and mastoiditis in which repeated daily hearing tests were made. We observed these tests assisted us in determining the progress of the disease, and if they went on to operation, the deafness tallied with the operative findings.

I think we make hearing tests too infrequently and unscientifically. They are corroborative, and applicable not only in the acute cases where there is swelling, pain, tenderness, discharge, rise of temperature, and positive X-ray, but also in cases which run a milder course. Stationary or increasing deafness should remind us of the changes taking place within—eventually necrosis, which may take place very rapidly.

We have occasion to observe cases where the X-ray and some of these aids are not available. But we always have at our command the watch and the tuning fork.

Frequently the Eustachian dam is caused by swelling of the mucous membrane at the isthmus of the tube. We all recognize the importance of rendering the nasopharynx free from infection. Dr. Leland, of Boston, is quite radical. He states that 95 percent of these cases are secondary to inflammation within the nasopharynx. He practices adenectomy during the acute stage. Personally, I prefer to tide these over into the subacute stage, if possible. In adults, in the presence of real pathology in the accessory sinuses, I think these should be corrected in an endeavor to conserve for the patient what little hearing remains.

The attic dam I feel I have in times past interpreted as granulation tissue, whereas it was unquestionably swollen mucous membrane obstructing drainage.

In this connection, I wish to utter a word of caution in regard to too forceful syringing of fluid and air through the attic opening in endeavoring to insure communication with the internal meatus. Too much force will spread infection throughout the porous petrous portion of the temporal bone.

Dr. J. Lue Sutherland, Grand Island: I want to say just a few words as to the opening of the tympanum. The incision must be made at the point most favorable to thorough drainage and should be deep enough of course but no deeper. Some advocate severing the periosteum of the bony wall at the point of the incision. If this is necessary it should be done, but if the infection is limited to the lining membrane of the middle ear, which is usually the condition in acute cases, it is not necessary and will certainly add to the cicatrization. The better way to avoid excessive congestion there is in addition to free incision of the membrana-tympani, to see to it that there is free drainage and respiration through the nasal cavities. I would recommend that we avoid making the incision unnecessarily deep as the resulting cicatrix will by just so much blunt the hearing.

Dr. J. M. Banister, Omaha: I think that in order that special papers of this type shall be of value in a meeting of this character, they should have their practical application to the work of the general practitioner emphasized. When extremely technical points in our special lines are discussed from the standpoint of the specialist the general practitioner is, as a rule, left out.

We have all seen many cases of deafness result from improper care in the case of acute suppurative inflammation of the middle ear. Many general physicians will have it in their power to conserve hearing in their patients in many instances by the use of very simple means at the very beginning, as soon as the patient complains of pain in the ear, in fact. The ear on the affected side should be irrigated with water, as warm as the patient can bear, at the very beginning and such irrigation repeated at frequent intervals.

Many cases of commencing infection can be aborted in this way. If the pain continues in spite of such irrigation, it is highly probable that a paracentesis of the membrana tympani should be performed, and the attending physician should lose no time in securing an examination and treatment at the hands of a specialist.

Dr. G. Baird, closing: I want to thank the gentlemen who discussed this paper for what they said. They were all very kind to me.

Dr. Brooks is right in saying hearing tests are very slopply made. The doctor hits a tuning fork on a metal table and says, "Do you hear that?" when you could hear it even in this room with the fans going. An ear test improperly made is of no importance.

If adenoids are obviously obstructing the tube, I believe in removing them. I can prove that many acute cases of suppurating ears clear up with no apparent loss of hearing two weeks after the case is operated upon.

The attic dam is sometimes called granulation tissue, when really it is nothing but swollen mucous membrane.

A word about using the attic cannula: We should not use it with great pressure, yet the swollen mucous membrane will prevent any forcing of liquid or other material into the petrous portion of the temporal bone.

A free incision should always be made if any incision is necessary. Here is one time where conservative surgery should have no place in the armamentarium of even the general practitioner.

I was glad to hear Dr. Banister talk. I want to agree with him that free incision is necessary.

Regarding hot water, my experience has been this: I tell the parents, or the nurse who is taking care of the patient, not to allow the child's bed or clothing to become wet under her. I go back and she is wet to the waist, which is a poor thing in measles or scarlet fever. Properly controlled, it would be a good thing. In a house supplied with electricity, the electric pad is a fine way to keep the child warm. Put on under a hood, the patient is comfortable with no pack or bag to lean against. It is an ideal way to apply heat.

I agree the membrana tympani should not be allowed to perforate. Do not wait until you can see a white point. Incise it early. Here is the greatest opportunity to conserve hearing in these cases.

As to the question by the last doctor who spoke, I do not know just what he meant. Around the Eustachian tube, yes; the lining of the tube, no. The lymphatic system runs the extent of the tube outside the tube structure, and any swelling of the lymphatics will obstruct it, usually at the isthmus, which is the narrowest point.

PRINCIPLES OF DREAM ANALYSIS*

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The study of dreams has assumed a definite place as a diagnostic procedure, having for its practical purpose the recognition of the causes of neuroses and psychoses, with a view to affecting a cure. This paper will deal only with the structure of the dream and its interpretation, and not with the physical and mental conditions which are diagnosed and treated by this method.

Our perceptions are constantly gathering psychological material from the outside world, and storing it within, as memories. It is probable that nothing that is once received in this manner, is ever lost. We carry with us a vast storehouse of material, of only an infinitesimal portion of which we are ever conscious. This "unconscious" or "subconscious" is not merely a stagnant reservoir; it is a form of activity, in which old material is constantly reassociated, and new ideas formed.

The unconscious has two outlets: the motor expressions, and the conscious, which we may conceive as an organ for registering material from the perceptions and from the unconscious. The motor expression may or may not be registered at the same time in the consciousness. At the gates of these outlets from the unconscious is a very important function, termed the censor. It jealously guards everything that issues from these gates so that nothing may get out which is not in accordance with our conventional training. The strictest watch is kept over the motor effects, in order that the impression we represent to the world is consistent with the character we wish to present; and during sleep, the purpose of which is rest, the amount of motor activity is cut down to practically nothing. The censorship over our thinking is not quite so rigid; we think things that we would never do; nevertheless our conscious thoughts are quite unified and consistent with our training, limitations, and conventions. We would be amazed and shocked if we could see our unconscious thoughts, to which the censor denies egress.

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It cannot help impressing us that repression is a powerful element in our psychic makeup. Of all the thoughts and desires that formulate themselves in us, by far the great majority are impossible, disagreeable, shameful, or impracticable. We at first learn to suppress them by an effort of the will; but in the course of our civilized training, we develop the ability to repress them without their ever having made an impression on the consciousness. Everybody forgets the painful, the forbidden, the unattainable. Our unconsciousness therefore contains a vast amount of repressed material, which is connected with the most powerful and fundamental impulses of our being. Sex, ambition, personal liberty, are especially concerned. This repressed material finds certain methods of escape. Under normal conditions, the censor keeps us from knowing that our little mannerisms, slips of speech, omissions, and forgettings, and especially our dreams, are the expression of repressed impulses. Under pathological conditions, the censor is overpowered, and neuroses and psychoses result.

During sleep, the perceptions are shut off to remove stimuli for motor and psychic activity, and permit of rest. The censor is doing its best to protect this rest from unconscious stimuli, but these latter are under considerable pressure. The same thing happens then, that we see in despotic countries where a strict censorship is exercised over the press. The feeling of the reactionaries slips by the censor, cleverly disguised in the form of satire. A writer, bitter against authority, writes an interesting description of the ridiculous customs of the inhabitants of the moon; and it is long before its political meaning is recognized.

Dream material is divisible into two portions, the **manifest dream content**, and the **dream thoughts.** The manifest dream content, or what is actually seen, heard, and felt in the dream, is usually very small in quantity compared with the dream thoughts, or psychological material that is the basis of the dream. The dream thoughts, obtained by bringing out the dreamer's free associations with the elements of the dream, consist of an immense amount of forgotten and repressed material, which may reach back into early childhood, and are always concerned with the important matters of the dreamer's life.

The material of the manifest dream content, or actual bricks and stones of which the dream structure is built, has two sources. The following active dream stimuli, while not alone capable of determining a dream, are taken advantage of by the dream activity, as a good opportunity of deceiving the censor:

1. External sensory stimuli: Light on the eyelids; sensation of the bedclothes; a limb projecting over the edge of the bed.
2. Internal sensory stimuli: Luminous spots of the retina; tinnitic sounds in the ears; parasthesias.
3. Internal organic excitation: Cardiac dyspnea; digestive disturbances; sexual irritation.
4. Psychic sources: Continuation of waking activity.

In the absence of active stimuli, the dream reaches into the memory for material. It prefers:

1. Recent impressions, of the day or two preceding the dream.
2. Subordinate, disregarded, indifferent trifles.
3. Forgotten trivialities from early childhood.

As the purpose of the dream is the expression of repressed unconscious material, and as by far the greatest proportion of such material consists of unattainable desires, it is not surprising that most dreams are **fulfilled wishes** in disguise. The more impossible of attainment the wish, or the more disagreeable or shameful it is to our conventional personality, the more difficult it is to read the wish from the dream content. A patient of mine dreamed that all her family were dead, and she was not the least bit sorry. There was a total absence of associations, meaning a strong resistance to interpretation. She was very much devoted to her husband and children, and would not have wished them the least harm. But in the dream, as in childhood, being dead means simply being gone, not existing. If she had not been bound by a family, she would have been free to associate with a very interesting man she had met a few times. My dream that I was being tried by the district court for perjury did not signify that I wished such a thing. I had made out my income tax return on the previous day; when some of my friends had told me of the time and trouble theirs had required, and their fear of getting something wrong and getting into trouble, I had gleefully told them of what a simple matter mine was. In reality, my income was such that the district court had little chance at me for perjury; the dream was a wish for a larger income.

Besides wish-fulfilment, and closely allied to it, we have, as another purpose of the dream, **compensation,** or the attempt to provide something lacking in reality. This is common in childhood. Last fall, when the weather began to get cold, my little girl dreamed frequently of butterflies and flowers. Soldiers in the field dream of home; the fat, lazy man dreams of hunting tigers in Africa; the peasant girl dreams of the fairy prince. Compensatory reactions to onesided natures are frequently expressed in dreams; the man who reflects too much and is deficient in action; or the man who does too many things and never gets below the surface, have dreams which complement these deficiencies in their nature.

A third purpose in dream activity is the **symbolic representation of a situation** known to the dreamer's unconscious, but not known to his conscious. A medical friend of mine gave me this dream to interpret while we were together in France:

> I was at the Medical Officers' Training Camp again, and carried Dr. X. a mile and a half on my back, and climbed a tree and got down again with my burden. I was proud of my fine physical condition, and glad that a certain hospital official could see me accomplish this feat. My hand towel at the barracks was getting badly soiled, and I wanted to send it to the laundry, but hesitated to do so, for I didn't know how long we would be at this place, and feared that we would be gone before I got my laundry back.

The latter situation was a frequent one in the service in France. Dr. X's specialty was venereal diseases. He had a physical defect which kept him out of the army, and often interfered with his work; my friend took care of him during an illness, and helped him carry on his work. The towel was one of the linen ones my friend's wife gave him for his military service. Dirty linen made him think of the prevalence of venereal disease in France, and the temptations he was resisting, as he had a family at home. The matter of laundry provided a common means of getting in touch with French women. Going, in dreams, frequently refers to departing from this life. This brief outline of the associations suffices to show that my friend's dream was reminding him that he was in good physical condition; that if he yielded to temptation, he might not get his dirty linen washed before he departed from this life.

Finally, we have the **convenience dream,** whose purpose is to keep the dreamer from being awakened. In general, the dream is the guardian of sleep, not its disturber. The troubling thought which would interfere with sleep, is disguised and allowed to escape. The thirsty sleeper dreams of long draughts of cool water, and sleeps on. The tired man, aroused too early by an alarm clock, dreams he has dressed and washed, and thus snatches a little extra rest. Freud records a long dream of a man with a perineal furuncle about riding horseback. If he could ride horseback, he had no painful furuncle, and therefore slept on, in spite of the pain.

We come to the principles of dream structure; of these, the first is **condensation.** A dream can usually be told in a few sentences, while the interpretation requires many pages. The dream contains certain significant words or objects, each of which uncovers a series of associations; a single word will be the symbol for an extensive and complex chain of thoughts, all on one general theme. A patient related a long dream, which began with a steamship ride. The associations took her back to California, where she had resided on the seashore, to the companions and pleasures of that time, and the beautiful weather, her love for the ocean, frequent steamer trips along the coast, and an immense number of pleasant memories, contrasted with a present full of sickness and privation. The steamer ride was a symbol for all that detailed happiness in her past. There is hardly a sharp boundary line between dream content and dream thought. We frequently relate a short dream, and on bringing up various associations, it occurs to us that we have dreamed these also. The impression of having dreamed far more than we can remember, is accounted for by condensation.

The second principle of dream structure, that of **distortion,** explains much of the apparent absurdity of dreams. The mental process is not peculiar to the dream; we see the same thing in the cartoon, the fairy tale, the charade, the rebus, in slang, and in witticism. The dream is presenting an abstract idea in vivid pictures; metaphors are required, which if taken literally, appear absurd. Suppose I make this statement: "I have open ulcers all over my body; I slip into a man's house and lead a goat down the street." It sounds like a foolish dream, but is merely a dramatic way of saying: "It makes me sore, and I'm going to get his goat." Just lately I saw a picture of an upper room filled with bottles and barrels, and whisky leaking down into the room below, which was occupied by a tall lanky man in a goatee and striped trousers. The lower room was shaped like a map of the United States, and the upper one represented Canada. At a party in my early youth, a boy eating corn off the carpet, was supposed to represent a musical performance; the solution was a cornet solo. The symbolism of the dream is no more difficult to understand than the above, if we possess sufficient data to solve it.

Displacement is another of the dream processes. This means that the portion of the dream which seems most prominent, does not necessarily represent the most important of the dream thoughts. Thus, in the medical officer's dream, the soiled towel did not seem very important in the dream, yet it was the key to the solution. Displacement is due to the fact that the thought that is seeking expression, is recast, or translated into another verbal form which is capable of dramatization. When I wished to express the slang phrase in pictures, I was compelled to use a different set of words. The resulting arrangement involves a change in emphasis; there is a failure to coincide of the important points of the two renderings, the abstract and the dramatic; just as when a song is translated into a foreign language, it cannot be fitted to the same music. This is because the dramatic rendering has requirements of its own; it must be made presentable, or plausible as a result, the emphasis is shifted, and the meaning of the dream still further concealed.

A further explanation of displacement is found in the analogy from waking life. Abstract ideas are expressed in symbols, especially for popular consumption. Women without families transfer their love to animal pets; the bachelor becomes a passionate collector; a soldier defends with his life a piece of colored cloth. Dreams do not deal with the thoughts or experiences of the day in true meaning.

The fourth of the processes of dream formation has been termed by Freud, **secondary elaboration.** This is the influence that fixes up the incoherences and absurdities, and gives the mixture a semblance of reality. We are familiar with the operation of this force elsewhere; if we come upon a misspelled word in the course of our reading, we see it correctly; if our attention is called to it, we are compelled to look at it closely in order to detect the error. If the dream has been particularly unpleasant, this influence will finish it with "this is only a dream" to keep us from waking up. It sets a haze over the unpleasant portions to keep us from remembering them.

A dream cannot express cause and effect, alternative, or condition, as such; logical processes of reasoning do not occur in the dream. Everything that appears as reasoning, criticism, etc., has been taken over bodily from the dream thoughts; the dreamer has actually said it or thought it in waking life, and it is repeated in the dream. Speeches occurring in a dream are those actually heard or used in waking life. Logical relationships are expressed in the dream as parallel statements in the indicative, of different lengths. A dream in two sections, or two short dreams, are apt to have such a meaning. Witness the dream of the medical officer; it was an argument with himself.

Similarity, agreement, and community are relations which the dream is eminently adapted to express. It does this by identification and composition. If my dream expresses a wish that I could speak like Bryan, the dream identifies me with Bryan; in the dream I am Bryan. Or the dream makes a composite person, possessing the characteristics of a number of others who have some common quality. Freud relates a dream of a patient, A, with whom he was not having the success in treatment that he desired. In the dream she assumed a position in her chair, which she never assumed in reality; but this position was regularly taken by a patient B, whose treatment was progressing very successfully. The dream is a wish that A's treatment were as successful as B's.

Negation or contradiction is expressed by inversion. If we dream that the station platform is moving and the train is stationary, it signifies that something else in the dream must be reversed. To dream that a thing has been dreamed, is also equivalent to denying the truthfulness or the value of it.

A patient of mine dreamed that I had weighed her and told her that she weighed enough and could go home. But she could not move from the spot; her feet were glued to the floor. Her wish to be through with the treatment was expressed in the dream; but it was also denied; she was not yet ready to cease treatment. I dreamed that I was going to Omaha, via the Northwestern; but the train had no engine; I could not get a ticket, and finally the train left before I got aboard. I had been asked to take up a position in Omaha, and this was my unconscious, expressing its desire that I do not accept this position. This dream of inability to move, or to accomplish something, is typical of a denial or a contradiction, or of a conflict of will in the dream thoughts.

There are various forms of typical dreams; the same dream is experienced by many people, with the same meaning. Such symbolism is characteristic, not of the dream, but of community of unconscious thinking. Usually, dream symbolism depends on the mental processes of the dreamer, and cannot be interpreted unless associations are freely supplied. Therefore, an apparently typical dream may always contain a special symbolism.

The dream of being naked or scantily clad, is a very common one. Usually the spectators are strangers and are quite indifferent; and the dreamer is without shame. Such a dream takes us back into childhood, when this was actually the case; it is a wish for the carefree paradise of childhood. The disagreeable sensation that frequently accompanies the dream is the reaction to the fact that the dream was put on in spite of the censor.

The dream of flying also reaches back into childhood, when uncles and grandparents supply the child with thrills that are a good imitation of flying. The death of a close relative, without the accompanying sorrow, in a dream, is also drawn from childhood, when death was not understood; it simply meant that the person was no longer present; and childhood dislikes were expressed in the inadequately comprehended wish that its object were dead.

The dream of taking examinations for medical and other degrees, that were in reality passed years ago, is a frequent one. It occurs only to those who did well in these examinations, though they worried at the time; and occurs at a time when they are confronted by the necessity of making a responsible decision, of undertaking an important action. The dream is therefore an assurance that everything will go along well, as it did on the previous occasion. Missing a train is another typical dream. Going away, or departing, often occurs in dreams as symbolical of death, and such a dream is a wish or an assurance that the dreamer will not die; not in any sense prophetic, but merely an expression of his unconscious mental processes.

After this review of dream structure and dream work, but little remains to be said on the technic of analysis. The dream must be taken, not as a whole, but piece by piece, and subjected to association. This is best done, not in the ordinary office, but in a darkened room, especially furnished to eliminate distraction; the patient should be lying down, and should not see the doctor. Failure to obtain associations is usually attributable to resistance on the part of the censor to an interpretation. Anything that interferes with the continuation of the work, is apt to have the same cause; the unwillingness of the patient's consciousness to face the true situation. A man has been living a lie and didn't know it; and he fights to the last ditch our every effort to tell it to him. At the same time, we must consider that a lack of associations may be due to plain stupidity, difficulty in expression, or inability to link up the abstract with the concrete. Doubt in the dreamer's mind, as to the accuracy with which he remembers a point, may be due to the resistance of the censor, or it may be an actual doubt from waking life, transferred bodily into the dream. Asking a patient to repeat a dream will often bring out the weak spots; the parts not accurately reproduced are being guarded. Every idea, no matter how apparently irrelevant or adventurous, is to be pursued to the limit.

The dream is practically never to be taken literally, any more than the picture of the crowned individual with a chair going to pieces under him, is to be taken literally. After we have the associations, we have then to decide whether the material is to be understood negatively or positively; whether it is historical (infantile reminiscence), symbolical, or whether it is the sound of its verbal expression that is to be taken into account. We may put it down as an axiom that the dream never concerns itself with trivial matters, and with the affairs of others. It is absolutely egotistical; and it conceals its meaning under the outer guise of trivialities.

Usually, when some sort of a meaning has been arrived at, there are further meanings to be obtained by additional study. One can never be sure whether one has the interpretation complete, or whether the end has been reached. The average dream has two or more interpretations, each new one reaching deeper than the last into one's hidden motives and impulses; and these do not contradict, but overlap and supplement each other.

UROLOGY IN RELATION TO SURGICAL DIAGNOSIS*

J. S. Welch, M. D., F. A. C. S., Lincoln, Neb.

Urological diagnosis is a phase of medical practice much read about and little used by doctors in routine work. The necessity of its more general adoption is herein again urged, and as justification for this contention I present the following six reasons, with illustrated case record abstracts. These six reasons by no means exhaust the argument. They are only presented as being typical, practical, and persuasive.

I. Urological diagnosis is obligatory before any major surgical attack upon either kidney (extreme emergencies excepted).

II. The diagnosis and location of urinary calculi are never accurate without urological study.

III. The location of the source of hematuria is made possible only by urological study.

IV. Tumor diagnosis and prognosis depend very greatly upon this means of study, while the surgical treatment of certain cases depends entirely upon the cystoscope.

V. For the early diagnosis of urogenital tuberculosis and for the prognosis in most cases we must depend upon urology.

VI. For the exact diagnosis, as well as the treatment of pyelitis and other urinary infections, urological methods are imperative.

FIRST NECESSITY.

Urological diagnosis is obligatory before any major surgical attack upon either kidney (extreme emergencies excepted).

No surgeon should ever consider a nephrectomy without first catheterizing the ureters, making radiograms and testing the function of individual kidneys. The two cases following will illustrate this fact.

Case 1. A woman fifty years of age presented herself to her surgeon in 1907 with a large irregular tumor on the right side of her abdomen. It was movable, without inflammatory evidences, and she stated it was growing and painful. There were no urinary symptoms and she was in all ways a good surgical risk. Her surgeon did a transperitoneal nephrectomy after mistaking, upon palpation, the spleen for a left kidney. She died on the fourteenth day, and the autopsy revealed two normal ureteral meati in the bladder, but the left ureter crossed to the right side of abdomen after ascending over the pelvic brim to unite with the single congenitally atypical right kidney. Please note here that cystoscopy and ureteral catheterization alone would not have detected the abnormality. Only the radiogram showing the opaque catheter crossing to the single kidney could do this. (It is of interest to note that the patient lived fourteen days without secreting a drop of urine. Coma came only on the final day).

Case 2. Mrs. P., forty years old, in September, 1921, applied for relief of pain in the right side of the abdomen. It was accompanied at times with nausea and vomiting. There was a movable tumor in the right flank and abdomen which was tender and seemed to ascend into the kidney fossa like a freely movable kidney. It was larger than a normal kidney and atypical in shape for a kidney, and she thought it was increasing in size. Urinary frequency was double plus during attacks. Her husband had had a right hypernephroma with nephrectomy one year previously, and she was very apprehensive and desired surgical treatment. Cystoscopy showed a single ureter going to the kidney (tumor) on right side, with a pelvis holding less than 10 cc. and showing a red test by vein of three minutes. Diagnosis: A congenital single kidney, so freely movable as to cause an occasional mild ureteral crisis. A kidney abdominal support was adjusted and operation disapproved.

SECOND NECESSITY.

The diagnosis and location of urinary calculi are never accurate without urological study.

The usual symptoms of renal or ureteral colic may be indicative of calculi, but without roentgenograms when opaque catheters are in place a reliable diagnosis cannot be made. Intestinal colic, gallstone colic, referred pleural pains, or even referred kidney and ureteral colic from the opposite side may simulate and confuse. Stone shadows alone are not reliable. Gallstones, intestinal contents and calcified glands may be taken for renal calculi in or about the field of colic. Only the opaque and the waxed catheter, together with the roentgenograms, will prove.

Case 3. Father P. appeared in March 1921 with intense colic in left renal region, slowly moving toward groin. He had intermittent fever reaching 104.5 F., with sweats, chills, exhaustion, and emaciation was rapidly ensuing. Such trouble had occurred on three previous occasions some years apart, but for short periods only. Catheterization revealed a normal right kidney. The left ureteral catheter met an obstruction five centimeters within the meatus. It would pass no farther, even with fluid injected in advance. Roentgenograms showed a shadow in contact with tip of catheter. Four days later it did pass, with free scratching on its surface, and the urine was pus-filled. The X ray findings revealed the stone still near the meatus, with a dilated, deformed ureter and kidney pelvis. Only pyogenic organisms were found. Here the urological diagnosis revealed the condition as nothing else could, showing:

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*Read before the Nemaha County Medical Society, Nebraska City, December 1921.

Note: Gall stone closely resembling Kidney stone. Differentration easily made with pyelogram.

(a) A normal right kidney, making operation on left permissible.

(b) A stone 2 cm. from the meatus, which crumbled in contact with the catheter and passed without ureterotomy.

(c) A pyonephrosis on the left side, of an irreparable degree.

A left nephro-ureterectomy was done.

Case 4. Mr. T., twenty years of age. Came in October, 1921, for the relief of tenderness and abdominal colic on right side in the McBurney region. He had been advised to have an appendectomy. There had been nausea and vomiting and slight pyrexia (duration four days). There had been one previous similar attack some four months previously, of short duration. Cystoscopy revealed a congested and protruding right meatus and an obstruction 4 cm. up the right ureter which allowed catheter to pass, scratching same somewhat. The ureter above was slightly dilated, and the pelvis of kidney held 35 cc. of sodium bromide. The urine was sterile. Left kidney functioned normally. Here the urological diagnosis proved:

(a) That the trouble was not appendicitis—not even ureteritis from contact with an involved appendix. (N. B. "Twenty-eight per cent of kidney and ureteral pains are abdominal." Kretschmer.)

(b) That the kidney and ureter above the impacted stone were uninfected although considerably dilated.

(c) That the stone probably would not pass (four months' duration), nor could it be reached from the bladder. An extraperitoneal ureterectomy was done and stone removed.

THIRD NECESSITY.

The location of the source of hematuria is made possible only by urological study.

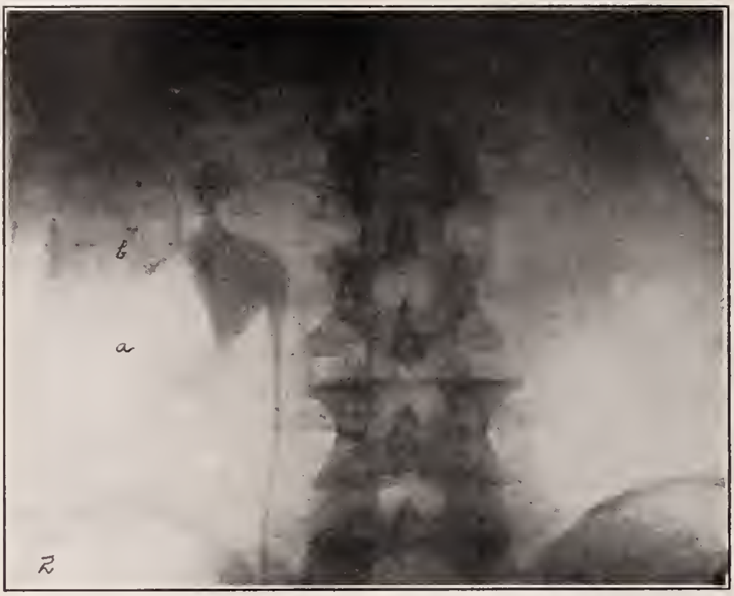
This fairly common symptom, so often erroneously treated as a renal disease, deserves early and correct investigation because at this time only can its cause be successfully removed. Dr. Edwin G. Davis, in the Journal of the Iowa State Medical Association (August, 1921), says that about fifty per cent of all hematurias will be found due to tumors (hypernephroma, carcinoma, papilloma, prostatis, etc.) Tuberculosis is the next in frequency, then follow stones, infections, and essential hemorrhages. At a glance it is evident that only early diagnosis and removal can effect a permanent cure in such cases. Even in impacted stones, delay will bring a dilated ureter and hydronephrosis, with probably a superimposed infection and death of the kidney. It should be remembered that hematuria is a symptom only; that it usually occurs alone; that it is intermittent in many cases; and that neither patient nor doctor should consider its disappearance a cure. Urological study only can reveal the true source and point out the correct treatment.

Case 5. Mr. F., a man seventy years old, came in August, 1921, seeking relief for hematuria and frequent urination, especially at night. His history shows that two or more attacks of similar trouble have occurred in the past fifteen years. The general physical examination shows nothing remarkable. Cystoscopic examination shows a partly necrotic, papillary, flagellate, bleeding tumor around the right ureteral meatus. The left ureter catheterized easily and the urine was normal. The right could not be found. Diagnosis: Papillocarcinoma of bladder wall. Urological diagnosis was here too late. Probably a papilloma had existed for ten or fifteen years, during all of which time fulguration would have offered a very favorable prognosis. Its use at this stage was followed by a very temporary improvement in the bleeding and subjective symptoms.

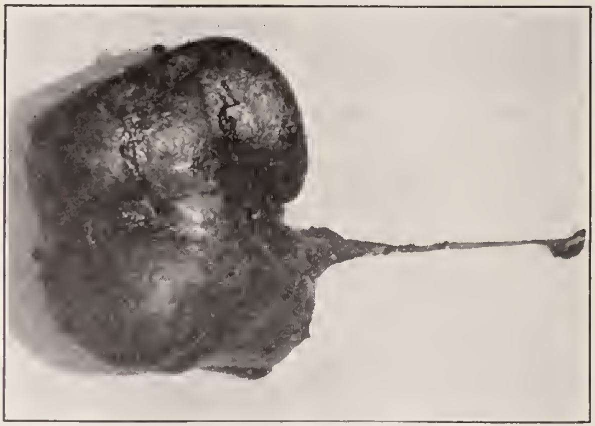
FOURTH NECESSITY.

Tumor diagnosis and prognosis depend very greatly upon this means of study. Surgical treatment of certain cases (Case 6) depends entirely upon the cystoscope.

As was stated above, tumors in the urinary tract cause approximately fifty per cent of the hematurias. When the source of bleeding is located in a kidney and a pyelogram shows a bulging into the pelvis deformity, often with circular shadows in the kidney mass, one is justified in condemning that kidney as a probable hypernephroma. With a history of rapid growth, sometimes with pain, loss in weight and toxic evidences, the diagnosis is most certain. If the opposite kidney is then proven sufficient, the surgical diagnosis is complete, providing metastasis in the lungs and long bones is eliminated. Some chance is here warranted if in doubt, since you have nothing to lose and everything to gain.



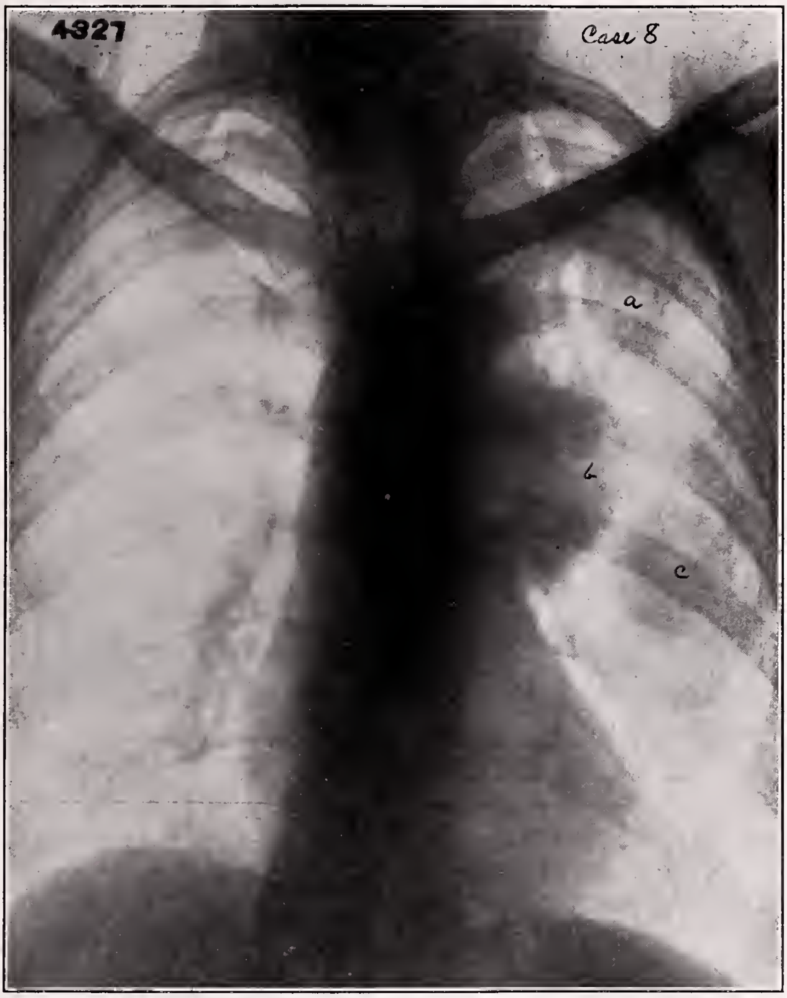
Note: Hypernephroma. Newer growth "a" bulging into pelvis. Older calcified part "b" in upper pole casts a circular shadow.



Photograph of this kidney.

Case 7. Mr. P. A slender, frail man sixty-four years old, with a known chronic endocarditis and myocarditis, applied for the relief of hematuria. He had been feeling unusually well for five or six months. For six weeks he had noted blood in his urine. At times it was very red and at others only smoky. In the physical examination the chief noteworthy finding was a freely movable, irregular-shaped right kidney. No pain, tenderness, pulsation or fluctuation existed. He thought the mass was growing. Cystoscopy revealed blood coming from the right kidney, and a semiopaque globular shadow protruding into the pelvis of right kidney was noted in the pyelogram. The pelvis held 12 cc. The left kidney function was normal. This urological diagnosis called for immediate nephrectomy, in spite of the fact that hematuria was his only symptom. Moreover, he was a frail man 64 years old, with an organic heart disease.

Case 8. D. G., a schoolgirl of seven years, with a very ordinary past history. Three weeks ago she complained of abdominal pain and malaise. One week ago her mother noticed a lump in the right upper abdomen and a little blood in the urine. There was slight increased frequency and pain on urination. Cystoscopy revealed blood coming from the right kidney, and the pyelogram showed the calyces elongated and distorted as if pressed upon by a dense lobulated mass. Roentgenograms of the chest showed a mass about the root of the right lung. There were other questionable areas in this lung. In spite of this, operation was advised and accepted (but at the hands of another surgeon), the diagnosis being malignant kidney with probably secondaries in the chest. The report to us is one of carcinoma, and the child is alive and well to date. She is being vigorously X rayed, but a cure cannot yet be claimed.



Note: Secondaries in left lung—a-b-c.

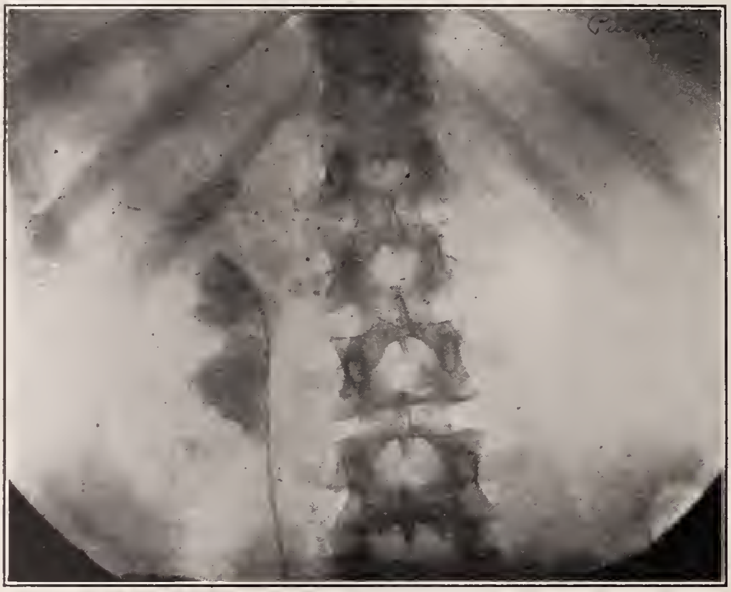
Case 9. R. I., a man of forty-eight years, with no past illnesses. He came for the relief of left chest trouble, first noted six weeks before. His complaints were those of pain with cough, slightly productive and containing a little blood. He had lost 25 pounds in weight, had a poor appetite, and was easily exhausted. The physical examination showed marked areas of dullness in his left chest, a liver three fingers below the costal arch, with an indefinite tumor below this and urine constantly showing blood, albumin and casts. The roentgenograms of his chest show characteristic malignant metastasis on the left side only. Because of the extensive secondaries in the lung and the exhausted condition of the patient, already in an incurable state, no cystoscopy was done. No postmortem was obtained. Probable diagnosis, hypernephroma of the right kidney, with extensive secondaries in the lung.

FIFTH NECESSITY.

For the early diagnosis of urogenital tuberculosis, and for the prognosis in most cases, we must depend upon urology.

Even if tubercle bacilli are found in an acid pyuria we have only begun the diagnosis. Almost every such case will have one or both kidneys involved, and the determination of which one, the degree, and the accompanying involvement of ureter and bladder, is strictly a urological diagnostic problem. Moreover, the prognosis can only thus be determined and the operative policy indicated. If one kidney, or this kidney plus its ureter is involved, remove them. If the bladder, the prostate, and even the seminal vesicles are involved, they will frequently heal after the removal of involved kidney and ureter. A very mild involvement of one kidney and a very extensive involvement of the other may even warrant removal of the bad one, but healing of the mild involvement probably will not follow. An accompanying active pulmonary tuberculosis may improve or heal if a bad tuberculous kidney is removed.

Case 10. Mrs. A. G. M., a woman 37 years old, applied on August 7, 1919, for the relief of urgent, frequent desire to void. A nycturia of 5-15 was present. There had been no blood in the urine. She had a second-degree laceration of the perineum and cervix, with a marked cystocele and rectocele. Her teeth were badly infected, and there was some question of focal infection in the tonsils and gall bladder. The lungs showed nothing remarkable. She was advised to clear the mouth of infection and to be operated upon for the lacerations. These were done, with slight improvement so far as the frequency of urination was concerned. Three months later blood appeared in the urine, and cystoscopic examination revealed a normal left kidney with an obstruction in the right ureter about 10 cm. above the meatus. No injections above this point were possible. Roentgenograms of the right kidney injected showed a shadow which suggested irregular calcium deposits. Later attempts to catheterize failed. Diagnosis: Tuberculosis of the right kidney and ureter, based upon the following urological findings: Ulceration of meatus, stricture of the ureter, and irregular deposits in the kidney (putty kidney). Removal confirmed the diagnosis.



Note: Tuberculosis of Kidney or Putty Kidney. Not injected with Opaque media. This case was not occluded nor closed to ureteral catheter as was case 9, but still an active tuberculosis.

SIXTH NECESSITY.

For the exact diagnosis, as well as the treatment of pyelitis and other urinary infections, urological methods are imperative.

By no means do all cases of kidney and ureteral infection need cystoscopy. Acute infections and chronic septic foci about the body are usually responsible, since most cases of renal infection are blood or lymph-borne. Therefore the removal of the particular focus responsible is the treatment of prime importance. The colon bacilli more frequently appear in the pelvis and collecting tubules of the kidney, hence they present strong urinary evidence. The cocci more often appear through the hematogenous route and may not filter through, hence the urinary evidence offered is less conclusive. Enough do usually appear, however, to produce cultures for comparison with those made from suspected foci, and thus to confirm the etiological connection. This may be a tooth, tonsil, sinus, appendix, gall bladder, furuncle, etc. A well developed pyelitis does not always clear up, even with the removal of a responsible focus. A urethral or ureteral obstruction will assist in maintaining it.

A pregnant uterus frequently precipitates a pyelitis in a kidney otherwise able to maintain normalcy. Naturally the removal of this obstruction is essential in the treatment. Catheterization, irrigation, etc., may be demanded in extreme cases.

Case 11. Mrs. N. This woman was seen at her home in the country. She had been ill in bed three weeks with intermittent fever, some days reaching 104° F. Chills and sweats, rapid loss in weight and strength, were factors. She was four months pregnant. She complained of pain in her entire abdomen, but especially on the right, and there was most tenderness here and in the right flank. Nausea and vomiting were common. Frequent urination and offensive urine were noted. A similar attack had occurred during late pregnancy six years before, and laparotomy for peritonitis had been urged. A temperature of 106° F. was followed by abortion at seven and one-half months, and improvement had followed promptly. She was taken to the hospital, where cystoscopy and ureteral catheterization revealed a right pyelonephritis. Repeated irrigations controlled until delivery of a much desired child. The removal of multiple infected foci did not return the kidney to a healthy state, and it was removed. There can be no question of the necessity of urological diagnosis and treatment in such cases.

Other and striking necessities could be given for the use of urological methods, such as the ureteral catheter in anuria following hysterectomy. But if we are to be aroused to their greater adoption, these are sufficient.

Surgery in its rapid growth has annexed chloroform, ether and other anesthetics. It has adopted antisepsis and asepsis with all of their details. It has familiarized itself with innumerable instruments more technical than the cystoscope. Roentgenology has brought much to surgical diagnosis and treatment indeed, so much that today it even threatens the overgrowth of surgery itself. It is impossible for one mind or one practitioner to master and manage all details of this particular urological work, but by more cooperation in his own environs, or by using diagnostic hospitals and clinics, he can readily avail himself and his patient of all of these advantages and necessities.

ANAL FISSURE AND ITS TREATMENT*

Louis E. Moon, M. D., Omaha, Neb.

As anal fissure is one of the most frequent rectal troubles, it is well worth our time to discuss briefly its characteristic signs and symptoms, and to outline its surgical treatment.

Fissure, anal ulcer, ano-rectal ulcer, and irritable ulcer are synonymous terms. Rectal ulcers should not be confused with anal ulcers, as their etiology and symptomatology are entirely different.

There are but few conditions in the whole range of surgery, which give rise to so much intense pain and suffering, as does a fissure. The lesion in many cases is so small that it is overlooked until some complication has developed, which calls for immediate relief. A typical anal fissure is described, as a lesion in the anal canal, varying greatly as to its shape, location, and depth.

Fissures are seen most frequently in the posterior commissure; next most frequently in the anterior commissure, and then on the lateral wall of the anus. In women it is not uncommon to find the fissure anterior. Generally speaking, we assume that they occur singly, but occasionally two or even three or more will be present. Where we do find more than one fissure, we should keep in mind the fact that multiple fissures occur most frequently in syphilitics.

Due to the rugae or folding in of the mucous membrane of the anal canal, the ulcer appears as a fissure or crack between the anal folds, extending in a longitudinal direction to the anal canal. Its shape is apparently elongated, but in many cases if the anus is dilated and the mucous membrane is smoothed out, it will be seen, that we have a round ulcer. So one can readily see why it has been described by the different terms, fissure or ulcer.

The depth and extent vary greatly. It may be simply a solution of continuity of the mucosa, or it may involve the mucosa and submucosa and penetrate to the muscular layer, thus exposing the sphincter.

At the lower extremity of the ulcer, we find a redundant skin tag. Upon everting this tag, one usually will see the lower end of the fissure. This tag of skin has been called the "Sentinel pile of Brodie." In every case where you see such a tag, in which the patient complains of symptoms, which lead you to suspect a fissure, evert this tag and you will usually see the lower end of a fissure. At the upper extremity of the fissure one also finds quite frequently a small polyp or tag of mucous membrane.

Bleeding during or after stool, usually is present where there is an open ulcer. It is not profuse but just enough to be noticeable on the stool, or to soil the clothing. It is not a spurt of blood like that which usually occurs from hemorrhoids.

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*Read before the 5th Councilor District Meeting, Tekamah, Dec. 12, 1921.

The etiology in most cases is trauma. This is produced by the passage of hard constipated stools, irritating diarrheas with severe tenesmus, the passage of foreign bodies such as fish bones, portions of toothpicks, and other hard substances. Injuries to the anal mucosa are often produced by the careless insertion of syringe tips and suppositories. Also by the use of rough detergents.

Trauma or a chronic irritation is also caused by the presence of polypi in the anal canal. As said before, we often find a polyp at the upper extremity of the fissure, or one on the opposite wall. It can be easily understood, how, at each stool this tumor mass is forced into the ulcer area and will prevent any lesion from healing after it has once become open.

The most prominent symptom is pain, which may begin before stool, during stool or at a period of from one half hour up to three hours after stool. The pain is described as a burning, cutting, or tearing pain. It requires the most intense terms to describe the pain, as it often requires opiates for its relief. Along with the pain is a sensation of throbbing as though there might be an abscess in the process of formation.

The duration of the pain is variable. It may last only a few minutes, or it may be almost constant, lasting from one stool until the next. The usual history is that the pain begins one half to one hour after stool and lasts two to three hours.

Along with the severe cutting, burning pain, there is an intermittent griping or spasm of the sphincter which adds not a little to the patient's discomfort.

Examination: If there is any one condition that requires extreme care and gentleness in the examination and treatment, it is anal fissure. It is not to be wondered at that the rectal patient seeks the man who promises to treat any rectal condition without pain, after he has been to some one who has blindly inserted the finger into the rectum and turned it around two or three times and then informed the patient, that "You have no piles." In examining, first of all make a careful inspection and by palpation locate, if possible, any painful areas which may be present. Then when the finger is inserted into the rectum, make pressure away from the tender area. By observing this point, many cases can be examined without pain to the patient, when otherwise the examination would be worse than the treatment. With the examining finger in the rectum, feel carefully for indurations other than that of the ulcer base. An anal ulcer is palpable as the base is usually indurated and the edges thickened. The most frequent complication of fissure is perianal abscess, followed by fistula formation. A good syndrome to remember for fissure when allowed to go untreated is:

Fissure, infection, perianal abscess and fistula.

Treatment: This can be divided into palliative and surgical. The palliative treatment suffices only on the very superficial and recent fissures. I do not think that we are justified in torturing our patients with caustics and ointments and suppositories when we have an indurated ulcer.

In order to treat the condition properly, we must remove the ulcer and then place the hypertrophied sphincter muscle at rest. The preparation of the patient need not be as elaborate as when one does an abdominal section. The bowels should be cleared with a mild laxative on the day previous to the operation. The patient is allowed to partake of light food and may have a small breakfast on the morning of the operation if he desires. The rectum and lower colon are flushed out with normal salt solution four hours before operation. One hour preoperative, I give morphine and scopolamine hyperdermatically and the patient ordinarily will be quite drowsy by the end of the one hour period.

The operative field is painted with iodine and we are ready to make the local injections. I first make one small intradermal wheal with ½% novocaine without adrenalin, at a point in the mid line three-fourths of one inch posterior to the posterior commissure. I also insert at this point my needle for the deep injection which is made posterior and lateral to the sphincter from this point. The solution is injected at this point deeply in order to block the inferior hemorrhoidal nerve which enters the sphincter in a fan shaped manner at the junction of its middle and posterior thirds. This blocking gives the relaxation of the sphincter while a more superficial injection gives the skin anaesthesia. It is also always well to inject the base of the ulcer. I next grasp the skin about the anus at four equidistant points with four Pennington's triangular forceps and evert the anal canal, thus exposing the entire pile-bearing area, on the surface of which the ulcer is situated. This field is now painted with iodine. The fissure is then excised. If there is a sentinel pile or a polyp present, it should be removed at the same time. Any redundant mucous membrane or skin is next clipped away and the triangular forceps are removed and the parts allowed to resume the normal position. We must next relieve the sphincter spasm by incising the superficial fibres of the sphincter which has been laid bare by the removal of the ulcer. This incision should be made transverse to the direction of the muscle fibres. It is carried well out onto the skin so as to allow for complete drainage. I do not advocate complete division of the external sphincter as the convalescent period is greatly prolonged and there is a possibility of incontinence. The wound is not packed but a single layer of gauze is laid in the wound to prevent the edges from adhering. This manner of dressing is continued until the wound begins to granulate from the bottom, at which time the gauze wick is left out. The wound is then inspected from day to day, keeping watch that there is no pocket formation in any part. The patient is allowed to be up and about as soon as he wishes. Paraffine oil is given on the morning of the second post-operative day and continued twice daily in order to produce a soft stool which will not irritate the healing wound.

This method of treating fissure is neither new nor original, but I have described it in order that I may show the needlessness of submitting patients to a general anaesthetic for the treatment of minor rectal conditions.

CONSERVATIVE OVARIAN SURGERY.

Chas. H. Breuer, M. D., Lincoln, Neb.

Probably no other organ in the human body has been more abused than the ovary since Ephraim McDowell removed it successfully for the first time. As with everything else, the pendulum has swung to both extremes, before the proper procedure was settled upon. First, when it was certain that it might be removed and the patient continue to live, it was removed for very trivial causes and again, when it was found what untoward symptoms followed, especially in young women when both ovaries were removed, many operators were frightened out of removing them at all, even for malignant disease. It was noticed that when both ovaries were removed, especially in young women, very grave nervous symptoms followed, bordering sometimes on insanity and lasting for several years.

As with other operations in their beginning, the indications and contraindications for removal of the ovaries were not accurately defined and we had to rely on experience and experimental investigation in the anatomy and function of the ovaries. It was not until the endocrine function of the ovaries was discovered, that we had some real facts to go by. When we knew something of the function of the ovaries, we could better understand the phenomena that followed total extirpation and could realize the importance of conserving their function. Now we remove them only when they are hopelessly destroyed by inflammation, suppuration, injury, degeneration or malignant disease. Cystic degeneration was the most frequent cause for their removal and for this trouble they were most frequently sacrificed, and it is mostly this condition that I want to discuss.

Until recently it has been supposed that the only function of the ovary was the production of the ova. But the experiments of many investigators have demonstrated that other functions of the ovary exist. The ovary itself controls menstruation, the matured ovum furnishing the impulse, although blood itself comes from the uterus. The ovary also influences the development of the breasts, external genitals and the uterus, as has been abundantly established by animal experimentation. (1), (2) When the ovaries are removed before puberty, the breasts, uterus and external genitals fail to develop. Without the ovaries, the uterus never develops and resembles the infantile or senile uterus.

The ovary certainly exercises a great influence on the nervous system of the female. When the ovaries are removed in early life, or when they atrophy through

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*Read before the Lancaster County Medical Society, Oct. 8th, 1921.

some disease and cease functioning and at menopause, nervous disturbances of greater or less violence appear, hot flashes, emotional disturbances, sleeplessness, irritable temper, sometimes bordering on insanity. The condition is not so violent in natural menopause, as nature has prepared the woman for the change. These disturbances disappear during two or three years after the system gets accustomed to their absence or after their function has been taken up by some other organ. The physical individuality of such a female never approaches that of a normal female with healthy ovaries. She does not feel the same way as a young woman does during her reproductive period, but resembles her post menopause condition. Occasionally these symptoms persist and a woman may become hopelessly insane. But if only one ovary is removed no such disturbances occur.

It was thought first that the ovary exercised these functions through the nervous system. But when the ovaries are transplanted elsewhere in the body, so there is no connection whatever through the nervous system, the phenomena of menopause do not occur and the ovarian endocrine function continues. This would indicate that some of the cells of the ovary elaborate some kind of internal secretion which has a great influence on the female.

W. J. Mayo (3) attaches great importance to the ovary and the menstrual function and goes so far as to say that the ovary not only controls the physiologic cycle of menstruation, but claims that menstruation itself has an endocrine function. The interstitial cells elaborate a secretion that controls and dominates the very life of a woman. It is now an accepted teaching that the ovarian endocrine secretion is in close connection with the other parts of the endocrine system and disturbance of the ovarian function is soon followed by disturbance of the whole endocrine system. Removal of the uterus when the ovaries are left undisturbed does not disturb their endocrine function. W. J. Mayo relates a case where he operated on a woman whose uterus had been removed twenty-two years previously and when he opened the abdomen, he found the ovaries in a normal state; she never suffered the disturbances experienced by women whose ovaries have been removed.

Osborne (4) lays stress on the fact that total oophorectomy disturbs the whole mechanism of the female body and is justifiable only in rare cases of malignant ovarian disease or total destruction of the ovaries.

Bucura (5) says that it is absolutely proven that the ovary exercises an endocrine function, but it has not been definitely settled how much the interstitial cells contribute and how much the corpus luteum. He says that the corpus luteum should never be removed if it can be helped. He says that during gestation stronger hormones are needed and nature has provided an additional source in the corpus luteum.

Graves (10) reiterates the changes following the removal of the ovaries: Genital atrophy on account of the cessation of the ovarian secretion; circulatory disturbances of the external genitals such as kraurosis vulvae, furunculosis, disturbances of the nervous system and psychic feeling, irritability and change of disposition. He recommends transplantation of the ovaries or administration of whole ovarian extract, including corpus luteum.

Curatulo states that when ovaries are removed before menopause, there is diminution of elimination of phosphates in the urine, there is a tendency to corpulence, the body weight increasing.

Kruser states that the nitrogen elimination curve oscillates but there is no permanent change. Carbonic acid elimination and oxygen absorption diminish for some time and then remain stationary.

The general changes are about the same as those of menopause. Great nervous disturbances, irritable temper, hot flashes, headaches and feeling of weakness. All the endocrine glands seem to be affected and the whole body seems to be out of balance.

The corpus luteum seems to have its chief function connected principally with gestation, as it atrophies very quickly when pregnancy does not take place. Dr. Loeb says the first function we notice is the sensitizing action on the uterus, causing it to grow. If we incise or bruise the uterus during the action of the corpus luteum, maternal placenta (deciduoma) is formed, the injury having similar influence on the formation of the placenta as the ovum. But when pregnancy does not exist, this reaction is of shorter duration. Corpus luteum and ovarian secretion control the cycle, ovulation, heat, growth or turgescence of the uterus, menstruation and regression. During pregnancy the corpus luteum has longer duration, and exercises influence on the growth of the uterus, parturient canal, external genitals and breasts.

Osborne (4) shows that it prepares the uterus for the reception and implantation of the ovum.

Beutlin (8) states that the ovary influences development and maintenance of the sexual system of the female and makes her feel like a woman. Ovarian secretion keeps the psychic feeling feminine. Ovarian secretion influences development of myomata and osteomalacia and these are chiefly caused by pathologic changes in the ovary. He claims that the main source of endocrine secretion of the ovary is the corpus luteum.

Goldberg (9) insists on conservation of the ovaries and their function as they elaborate important internal secretion and regulate and control the whole life of a woman.

Edward Ochsner (7) shows that the corpus luteum wields great influence on sterility and abortion of the cow. For instance, it has been proven by foremost veterinarians, that if through some influence the false corpus luteum is not absorbed, the cow does not come in heat, which corresponds with the amenorrhea in women and remains sterile. In a woman this may happen after exposure and in some cases even premature menopause has been established. But if the true corpus luteum is removed during an operation on a pregnant woman, abortion surely follows. The pregnant uterus is very tolerant to traumatism and a great deal of operating can be done without causing abortion, if only the true corpus luteum is left undisturbed.

The most frequent cause for which ovaries are removed is the so-called cystic degeneration of the ovaries, or follicular cysts, commonly known as the cystic ovary (2), (14), (15), (16). This disease is characterized by formation of small cysts, mostly the size of a pea or little larger, which may be single or multiple and may cover the whole surface of the ovary. Crossen (2) says these are simply unruptured Graafian follicles, either because they are too deep, or the tunica albuginea was thickened and the intrafollicular pressure was not strong enough to rupture it. Those follicles are filled with clear fluid under high pressure so that when they are incised the fluid may be ejected to a distance. Those cysts have smooth walls covered with simple epithelium, the other cellular structures of the ovum being absorbed.

Some ovaries have so many cysts that they resemble a mulberry. These cysts are found mostly around the convex border of the ovary in the parenchymatous tisse. It is only rarely that the whole ovary is degenerated and in the great majority of the cases a part of it can be saved.

Women suffering with cystic ovaries have constant pain in the ovarian region, aggravated during menstrual period. There may be uterine dysmenorrhea associated with it or not. Most cases of amenorrhea or dysmenorrhea are accompanied with cystic degeneration. This pain is produced mostly by the distention of the follicles by the fluid under pressure. By bimanual palpation the ovaries are very tender to touch and appear enlarged. In former years I have punctured these follicles when found during operations for other causes. The patients were relieved of their pain for some time but finally the pain returned and when the abdomen was opened again the cysts were found to be healed over and refilled or new ones formed. Therefore I came to the conclusion that a woman sufferer with this disease can be permanently relieved of her suffering without going through the throes of an artifiicial menopause only by conservative operation on the ovaries.

Oophoritis (11) is usually caused through infection by contiguity of tissue from pyosalpinx, appendicitis, typhoid parametritis and may be either plain septic or gonorrheal. If it is simple septic inflammation by extension it is better to treat it during acute stage on general principles, and then if the ovary later causes pain or an abscess forms within it, it may be removed as soon as the condition is recognized. In ovarian hematoma the ovary may be incised, the clot turned out and ovary sutured and saved.

In ectopic gestation, which usually occurs in the tube, it is rarely necessary to sacrifice the ovary. Ovarian gestation is so rare that very few of us have ever seen it but in the very few cases that have been reported, the operators report that they had to sacrifice the ovary.

In solid growths (11) the ovary is usually so permeated by the growth, that it must be removed.

Cystadenoma, (12) dermoids teratomata, papillomatous cysts, and ovarian fibroids usually call for total removal, but occasionally enough sound ovarian tissue is found, that a portion of it may be saved.

Prolapsus (11) and other displacements of the ovaries have often been causes for their removal, but in such cases it is never necessary to sacrifice them, unless they are hopelessly degenerated or destroyed by other pathologic processes. If simply prolapsed, they can be easily anchored above by small plastic operation. If they are cystic and prolapsed, the cysts can be first excised and tnen the ovary anchored above. Prolapsed ovaries cause a great deal of pain and annoyance and it is justifiable to operate for this trouble. Prolapse may be lateral or in Douglas' pounch and may be due to elongated ligaments, general flabbiness, increased weight of ovaries, from subinvolution inflammation or other causes, trauma, like falls, blows or severe cough. Symptoms are pain in the back, or in the groin or both, aggravated during menstrual periods and by any strain causing increase of intra-abdominal pressure or even straining at stool. Continued irritation brings on other pathologic conditions and ultimately total destruction.

Malignant tumors of course always require total removal of ovaries with all the invaded tissues, which is a sound surgical principle and it is not necessary to dwell upon this especially.

Before operating on the ovary for any cause, it is necessary to make a diagnosis as accurately as possible. However no one should depend absolutely upon a preoperative diagnosis and try to adhere to plans made beforehand or try to perform some typical operation as very often unexpected pathology is found, either additional or different. The surgeon ought to be equipped to make microscopic examinations of tissues during the operation. In some cases it is almost indispensable to have an assistant with freezing microtome ready to make sections during an operation. Malignant and suspicious growths may be found in the ovary or the surrounding area and the surgeon owes it to the patient and to himself to be sure of his diagnosis before he gets through with the operation. Microscopic examination often changes the plans of the surgeon and he must change his procedure.

When there is no special contraindication to conservative surgery it is better to save at least a part of an ovary, even if sometimes a secondary operation has to be done. Total ablation of the ovaries in a young woman is a serious operation for the patient and a serious problem for the surgeon. I would dislike to be reproached by a young woman for removing her ovaries, of which at least a part could have been saved. A young patient with both ovaries removed is unsexed. The question of cessation of bearing children is not the most important one, it is the influence of the ovaries on the whole system of the woman, that is the most important. If a woman, for some cause needs to be sterilized, there are very simple operations to accomplish this. An operation has been recently devised by which a woman may be sterilized without destroying anything and if necessity demands, the operation may be undone and she may be able to bear children again.

Ovaries should be removed totally, only for malignant tumors, tuberculosis, proliferating cysts, when destroyed by inflammation, cirrhosis, rarely when imbedded in adhesions and causing pain, large cysts, papillomata, embryomata, sometimes for dermoid cysts and gonorrheal inflammation. In other cases, every effort should be made to save at least parts of them. In cases of profuse hemorrhage it is better to remove the uterus than the ovaries. Kelly (15) advocates preserving tubes and ovaries even if a tube on one side and ovary on the other can only be saved. He quotes a case of a woman, with this condition, who still bore children afterwards. Keen (11) advocates removal of the uterus rather than ovaries for dysmenorrhea resisting all other treatment.

The operation for partial resection of the ovary is not difficult. (14), (1) The abdomen is opened in the median line in the usual way and both ovaries should be first brought out of the abdomen and inspected. Otherwise, the only good ovary, of which a part could be saved, might be removed. Right here microscopic examination is advised, to arrive at proper diagnosis. The surgeon must know his pathology thoroughly and be able to quickly decide what to do.

When it has been decided what is to be done, the surgeon brings the ovary out of the abdomen and lets his assistant grasp it with gloved hand between index and middle finger underneath and hold it up without undue tension. Some use forceps to either pole to hold them but I found out that this is not safe, as the ovarian tissues are so fragile and easily torn, that much damage may be done with forceps and the assistant can not hold the ovary long enough firmly for the surgeon to finish his work. When the assistant has a good hold on the ovary, the surgeon with a sharp scalpel makes a lozenge shaped incision around the affected area, just through the tunica albuginea, encircling the cystic part, but the space encircled should be just as small as possible and the tunica should then be peeled off as far as needed to dissect out the affected part. The cystic part should be excised with a sharp scalpel and not scissors, as much smoother work can be done with a knife. Then the stroma should be inspected and any other cysts found may then be resected with knife or scissors or torn out with forceps. Sometimes a light curettage must be done to clean out small cysts. If enough tunica albuginea is conserved it is much easier to close the ovarian incision without undue tension on the stitches. If the tunica is left too short, much tension comes on the stitches and they tear out very easily. Often then the wound gapes and unpleasant hemorrhage occurs. Always use a very fine round needle for suturing the ovary and No. 0 plain catgut. This is better than chromicized catgut. Close with buttonhole continuous suture. Stitches should be placed closely together to coapt the edges accurately and prevent adhesions and possible hemorrhage, though the latter is usually very small. If coaptation is accurate, no raw surfaces are left to form adhesions. If the ovaries are held by the gloved fingers instead of by forceps, the tissues will not be bruised and possible adhesions prevented. The ovary is then dropped back into the abdomen and incision closed without drainage, except in cases where there was inflammation with possible pus formation, when drains are better used. I have done this operation very many times and many of the patients have since born children.

If a tube is badly damaged by inflammation and in many cases even a pyosalpinx if not too large or the ovary is not hopelessly involved, it may be removed without sacrificing the ovary. Edward Ochsner (7) advocates removal of any unabsorbed false corpus luteum during an abdominal operation where accessible.

CONCLUSIONS:

(1). The ovaries have other functions besides ovulation,—they supply an internal secretion, which controls the whole sexual and even psychic life of a woman. They keep proper balance and are necessary for physical and psychical health and well being of a woman between puberty and menopause.

(2). For these reasons, every effort should be made and every precaution exercised to preserve them.

(3). It is possible to relieve symptoms of cystic oophoritis with a conservative operation and avoid artificial menopause.

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IS THE COUNTRY DOCTOR PASSING?*

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The magazine, "Nation," recently published an article entitled "The Country Doctor Passes." On that proposition I wish to make a few remarks: First, a few quotations from the article:

> "Since the days when Medicine emerged from priestcraft, the country doctor has been mildly glamoured with romance. . . . The isolation

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of his calling has averted professional criticism; his ambitionless mediocrity has insulated him from lay jealousies and hostility. Is the country doctor passing in America? Beyond question yes. . . . . Specialization and the revolution in science bore to him the first suggestion of inadequacy. The city-equipped, can do things so much better. . . . Standing amidst the rapids of progress, the country doctor is resolving into his primitive components: Leech, herb-doctor, bone setter, midwife. For his lessened hardships he pays dearly in the fatal consciousness of diminished capability."

This article goes on to state that, "Throughout the land the country doctors' positions are becoming vacant," and "That the call for medical missionaries at home will soon compare in urgency with that for medical missionaries in the near and far east and in India."

Now, the question arises in my mind: Is this true?

And if it is true that the country doctor is passing, are the reasons given the real reasons for his passage?

I think not. Are the statements made in this article fair to the country doctor? Is he a man of "ambitionless mediocrity?" Did specialization and the revolutions in science bare to him the first suggeston of inadequacy? Is the country doctor resolving into his primitive components; leech, herb doctor, bone setter, midwife?

The country doctor in the last fifty years has not been ambitionless. I know this of my own knowledge. I can remember the country doctor of fifty years ago. Even at that early date they had their county societies, where they met as we do to exchange experiences that each might thereby be better prepared to meet the responsibilities of his calling.

The word, "mediocre" means: Of medium excellence, ordinary.

The country doctors as a class have never been of ordinary type. By virtue of reading and thoughtful habits he has always possessed a mind far in advance of the ordinary men of his community, and in consequence of this, his mental superiority, has always been honored and respected.

Specialization and the revolutions in science have never brought him any suggestion of inadequacy. He has always felt himself inadequate to cope with the multitude of diseases and accidents which, must of necessity, come to him in his isolated location, and it is this feeling of inadequacy which has always spurred him on to greater effort, and has been instrumental in developing from his ranks some of the greatest specialists that have ever honored the medical profession.

The "city specialist can do things so much better," says the article. I grant you that the city doctor does have advantages in the way of equipment, but is that any reason why the country doctor should be degenerating into his primitive components? Most certainly not. It has simply been a further stimulant to his ambition to reach a higher standard of proficiency.

I ask you, gentlemen of this society: Is the country doctor degenerating? In your judgment was there ever a time in the history of medicine when he was so well equipped and prepared to attend to the duties of his calling?

I have no means of knowing who the real author of this article is but, from the spirit of the article, I infer, he is some city doctor. In my judgment our city brother, and there is nothing personal in this, I am simply speaking of him as a class, has always taken himself a little too seriously. Because the country doctor was accustomed to send an occasional patient to the city for operation or hospital care, our city brother grew to look upon him as a meal ticket. He could not, or did not realize that it was not so much his superior knowledge or skill the country doctor sought, as the better care for his patient offered by the modern city hospital. As I have already stated, the city doctor does have, on account of the equipment furnished by the big city hospitals, a better opportunity for accurate diagnosis. But even this advantage is often offset by our better knowledge of the patient and his home surroundings.

The country doctor's business is falling off, and has been for some time until it is becoming harder each year to make ends meet through legitimate practice. Notwithstanding the fact that there are fewer doctors in the country than of yore, I think we must all admit that that is true. But the falling off in volume of business is not due, as I see it, to any degeneration in the country practitioner. Regular practitioners have been so busy fighting each other, and caring for their usual routine of business that they have forgotten to watch what the other fellows were doing. While they have worked and fought and tried to discredit each other in hopes thereby to gain an additional patient, the irregular, the fakir of every description, and some who beggar description, came among them, armed with a license from the state, and by all kinds of lying advertisements, preyed upon the credulity of the people, and stole away the business.

The fact is the practice of medicine has become so commercialized that it is no longer a profession, but a business. For this condition the fakir outside of the regular fold is not exclusively to blame. He has found many of the regular profession, both in the country and in the city, ready to adopt his nefarious methods for the sake of the paltry dollars they hoped thereby to gain. You have all met them and witnessed their diabolical methods.

The layman, however intelligent he may be along other lines, is entirely unable to judge of the honesty and ability of the doctor. You have seen him hoodwinked, deceived and imposed upon by some medical quack. You have seen him doped with quarts of medicine when a single dose of calomel or castor oil would have served a much better purpose. But have you raised your voice in protest? No. Why? Because you knew that such a protest would bring upon you the accusation of professional jealousy.

But you ask what has this to do with the alleged passing of the country doctor?

Let me explain: Lincoln spoke a great truth when he said: "You can't fool all the people all the time." There have been those among the people who have refusd to stay fooled. In time they came to know that they had been imposed upon and robbed of their money, if not of their health, and they resented it and became suspicious of all doctors, the worst condition that possibly could prevail for both the people and the doctors. This dissatisfaction has driven the people from one doctor to another, and from one system of "healing" to another, thus opening the way for the entrance of any fake system that cared to enter.

But the question arises, is there any way to head off this system of piracy?

Upon this point I have but little to offer. Younger men than I must make the fight. I do know however, that if we are ever to have better conditions, they must come about through the education of the people, and through a better organization of the medical profession. And while we are educating the laity, we might do well to put in a little time in educating the doctor up to the realization of what constitutes a successful practitioner.

It is not a room full of waiting patients, or a large bank account, though I grant that these are conditions pleasing to contemplate; but a knowledge of work well done; of human suffering relieved; of lives saved, a feeling that in every emergency of life he has given the best that was in him, without stint or price, to the relief of his fellow man and the betterment of society. That constitutes a successful doctor.

The people must be taught to know wherein truth lies, and their own bodily safety; that education and skill are not alone the requisites of a successful practitioner, but that above and beyond any other qualifications stand integrity and professional honesty.

The people, at the present time are being educated down, not up, through lying propoganda sent broadcast through the mails and by written articles in the daily and weekly papers and magazines, setting forth the so-called merits of this or that drugless system of healing, thereby poisoning the minds of the ignorant and the unlearned, as well as the credulous members of the communities against regular scientific medicine.

I would not advise a campaign like that for the regular profession, but I do think that most of us have always been a little too careful to keep our lights under a bushel. When we have a case of interest to the general public, why not report it in the local paper over our own signatures? An occasional article handed to the home paper, telling what the regular profession is doing, could do no harm and might do good. This might help in educating the people. Hospital reports, printed in the lay press, carry the names of the patients operated upon and there for treatment, thereby boosting the hospital doctors. The big city doctor is not averse to a write up in the daily press, or in some magazine, thereby bringing his name before the people. The editor considers this news, and gives it free space. Why not the country doctor utilize, in a legitimate way, what free space he can get, as is here suggested?

ANGINA ABDOMINALIS: A CASE REPORT.

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The report of this case is prompted by a criticism of the use of the terms "angina sine dolore" and "angina abdominalis," which was made parenthetically in a discussion of the symptomatology of "angina pectoris." The use of the first named term does seem incongruous under any circumstance but the latter is not only a justifiable term but it is believed a very expressive designation for a definite symptom complex with equally definite underlying pathology. Though not so common as the more easily diagnosticated angina pectoris, the condition illustrated by this case is by no means a clinical or pathological curiosity, being as a rule associated with "angina pectoris" or general arteriosclerosis, or both. The term "angina pectoris" has always suggested a clinical picture rather than an anatomical one, probably because of the lack of constantly definite findings; however it would seem better to limit the use of this term to those cases in which the clinical picture is definite and in which coronary artery disease is at least suspected. There is no doubt that the picture will be presented in cases with coronary artery disease but the identical symptoms have been seen in cases where there is at least no gross demonstrable lesion of the coronaries. Likewise there is some doubt as to whether the resulting symptoms are the result merely of the changes in the coronaries, or of their peculiar location. The impoverishment of the myocardium as a possible cause of the symptoms in coronary artery disease has been emphasized, "ischemic pain," but by some the varying pains associated with angina pectoris are interpreted as referred, through the sympathetic system. Many authors mention the atypical forms but do not attempt to explain the cause of pain in other localities than the usual site. In the following case changes were noted in both the coronaries and the vessels constituting the coeliac axis with the symptoms entirely referable to the abdomen. In a hypothetical case of sclerosis of the coronaries with generalized peripheral arteriosclerosis, symptoms of peripheral arteriosclerosis might be the only outward manifestation of disease. Such symptoms would not be accounted for by the changes in the coronaries and it hardly seems more reasonable to seek above the diaphragm for the cause of the abdominal symptoms in the case to be presented, where definite pathological changes which might account for the pain are to be found in the abdomen.

Case: Cattleman, aged 60, native of Colorado, no definite family history obtainable. According to his surviving relatives, the patient had always enjoyed the best of health and had led a vigorous outdoor life. There was no history of alcoholism. Not even during the past few years had he evidenced the slightest complaint. Present illness: May 12, 1921, while seated in a train, he was suddenly seized with violent abdominal pain. This pain became so severe that the patient moaned with agony and rolled from his seat into the aisle. He was taken from the train half an hour after the onset of the attack and seen by the writer twenty minutes later. He was lying upon his back with his knees drawn up on his abdomen and at the same time rolling from side to side. He was able to state his name and home address but beyond this unable to answer any questions. In response to questions concerning his condition would point to his epigastrium, but could not tell anything about the character of the pain. He was extremely restless; his facies showed intense suffering; he was pallid, somewhat cyanotic, and only slightly, if at all, dyspneic. Surface of the body cold; veins of the neck prominent; apex beat neither visible nor palpable; heart sounds very feeble; no arrhythmia could be detected. Patient tried to prevent palpation of abdomen. Superficial epigastric tenderness was marked but accompanied by very slight rigidity. Right inguinal hernia, easily reducible. Pulse very feeble but regular. No edema of the extremities. Reflexes not disturbed. Camphor, caffein and digitalis were administered and the patient taken to the hospital. Restlessness and cyanosis increased with the pulse becoming more feeble and the heart sounds inaudible. Stimulants and morphia were administered and external heat applied but there was no reaction and the patient died twenty minutes after admission to the hospital. A catheter was being boiled at the time of death and upon catheterization immediately post mortem 200 cc. of clear amber urine was obtained; albumen, a few hyaline and finely granular casts, no sugar or acetone bodies.

Necropsy Findings: External examination negative. Peritoneum normal. Pleura and lungs,—few dense adhesions at right apex with fibrosis of the underlying lung tissue. Heart: Slight fibrosis of the myocardium; all valves negative except the aortic which shows a sclerotic and calcareous endocarditis of all leaflets; the coronaries show sclerosis with marked calcareous changes,—as far as can be determined the left is entirely occluded; the ascending aorta is slightly dilated; the arch and thoracic show moderate atheroma without evidence of dilatation. (For the sake of clarity the description of the abdominal aorta will be followed out here.) In the coeliac axis are found what appear to the writer to be the most striking changes of the case viz: marked sclerosis with calcareous changes and tortuosity—the calcareous deposits in the splenic artery almost occlude the lumen; below the coeliac axis the aorta shows little atheroma. The renal vessels are only slightly sclerosed—but the lumen of the aorta becomes rapidly smaller until at its bifurcation it measures a bare centimeter (in diam.). The viscera supplied by the vessels of the coeliac axis all show changes: the liver, red atrophy; the spleen fibrosis of a moderate degree; the pancreas rather marked fatty change; the stomach, thickening with shiny atrophic mucous membrane. The stomach contains a small amount of partially digested food but there is no evidence of a toxic agent or of the previous action of any. The kidneys show very moderate diffuse nephritis. No calculi in kidneys, ureters, gallbladder or ducts. No evidence of mesenteric thrombosis; no evidence of intestinal obstruction or perforation. It seems remarkable that the superficial vessels even of the lower extremities show only slight sclerosis.

Comment: In spite of the fact that prior to the postmortem examination myocarditis was given as the probable cause of death and that pain was the predominant symptom, the diagnosis of angina pectoris with the meaning ordinarily conveyed by that term was not considered. Some abnormality of the intraabdominal blood-vessels was considered as a possibility and although the patient lived for more than an hour, rupture of an intraabdominal aneurysm was strongly suspected. The pain was equally as severe as that of renal colic with infinitely more shock. Perforation of a gastric or duodenal ulcer was eliminated by the absence of any marked degree of rigidity in the presence of such exquisite pain and tenderness. Normal pupillary and tendon reflexes eliminated the commonly overlooked crisis of tabes. What would have been the effect of the administration of nitroglycerin or amyl nitrite in this case is only a matter of conjecture, but from what has been the observation of the writer in severe cases of angina pectoris it is believed that the pain would have been relieved somewhat but the ultimate result of the attack the same.

The term "vascular crisis" has been used to describe the symptom complex illustrated by this case as it has been used to designate symptoms arising from bloodvessel causes in other parts of the body. The term "angina abdominalis" seems more expressive and, just as do the terms "intermittent claudication" and "angina pectoris," serves to bring before one a definite clinical picture with an anatomical localization of the lesion, and should be reserved for those cases where definite causative abdominal bloodvessel pathology exists.

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CHRONIC SPLENOMEGALY WITH ATTACKS OF GASTRORPHAGIA DUE TO RECURRENT THROMBOSIS OF SPLENIC VEIN

Anders Frick, Chicago (Journal A. M. A., Feb. 11, 1922), cites the case of a man, aged 61, who at the age of 43, after a cold, had a severe pain in the epigastrium and the left hypochondrium. He remained in bed three weeks, and the pain gradually subsided. No definite diagnosis was made. He was therafter quite well until his fiftieth year, when he suddenly began vomiting large amounts of blood. At that time the spleen was found to be enlarged and a tentative diagnosis of Laennec's cirrhosis was made. At 59, he had what seems to have been a small gastric hemorrhage. At 60, he had a similar, but somewhat more severe, attack. The next day the feces, which were dark but not tar-colored, gave a very strong reaction for occult blood. Only after two weeks was the Weber test negative. He was examined thoroughly but with a negative result. A year and a half later he again complained rather suddenly of epigastric pain and great weakness. The feces contained occult blood. A few weeks later he suddenly became extremely weak, and shortly afterward began to vomit blood profusely. A transfusion of 1,000 c. c. of whole blood was made and he rallied immediately. About two hours later, however, he began to vomit blood and he died, exsanguinated, the following morning. At necropsy there were found: (1) an enlarged and not adherent spleen weighing about 500 gm.; (2) one old and calcified thrombus in the splenic vein and, immediately to the left of it, another thrombus of recent date; (3) the distal part of the splenic vein as well as the venae breves and the gastric veins considerably dilated; (4) a few enlarged lymph nodes along the splenic vein, and (5) petechial spots in the gastric mucosa.

BONE PLATE FOR USE IN FRACTURES CLOSE TO JOINTS OR TO EPIPHYSES

The plate described by William H. Byford, Blue Island, Ill. (Journal A. M. A., Feb. 11, 1922), is made of noncorrosive material, 1 inch (2.5 cm.) long, one-quarter inch (6.4 mm.) wide and one thirty-second inch (0.8 mm.) thick. In each end are fixed pins, three-eighths inch (9.5 mm.) long and one thirty-second inch (0.8 mm.) thick, with cutting points. To apply, a small incision is made, the fracture reduced and the plate hammered on. Very little force need be used. No holes need be drilled, and there is no necessity of the hands touching the wound. The plate holds firmly, and no more care in after-fixation is needed than when a Lane plate is used. To remove it, Kocher forceps are applied and the plate is withdrawn intact.

TREATMENT OF STRUCTURAL SCOLIOSIS AT MASSACHUSETTS GENERAL HOSPITAL

Armin Klein, Boston (Journal A. M. A., Feb. 11, 1922) states that severe structural scoliosis is being treated at the Massachusetts General Hospital on the assumption that scoliosis cannot be cured. Therefore, attention is directed toward improving the symmetry of the patient so that, with proper training, the muscles may become adequate to compensate for the deformity. The pelvis and thorax are rotated on each other, so as to rearrange the parts of the thorax and to bring them nearer to the center of gravity. Thus the force of the muscular resistances is transmitted through the thorax to cause a gradual change in shape, with the help all the time of the respiratory forces. In other words, the peripheral stresses resulting from the rotat[illegible] treatment plus the respiratory forces, cultivated before hand by intensive training are employed to correct the deformity.

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TIME AND MONEY WELL SPENT.

Attendance at medical society meetings has always seemed to the writer time and money well spent.

The social features, meeting one's friends, meeting new faces, getting their viewpoint, is worth all it costs in time and money. Listening to the reading and discussion of papers is a veritable postgraduate school without clinics,—and now we are also to have clinics.

A noted surgeon once told the writer that he had never attended a medical society meeting however humble, without learning something.

Pity the psychopathic mortal who is not interested in medical society meetings for he is not a valuable asset to the community that depends on him for medical care.

THE DOCTOR AS A PART OF THE COMMUNITY.

The doctor should be modest yet courageous and he must be a part of the community. He must take part in the various civic activities of the town in which he lives. He need not be a candidate for mayor at the first election after his arrival in the place. Indeed, he need not become mayor at all, but, in any community, it is the duty of its citizens to take by turns, as they are requisitioned, duties on the board of education, on the town council, or in the community club.

The doctor's education peculiarly fits him for service of this kind; and in turn it gives him a breadth of view. While he must do his duty fearlessly as he sees it, he must not be an extremist. Perhaps none of us realize how much our lives influence the community life. Holding these views the editor has noticed with keen interest the part being taken by some members of the profession in this state in the good fellowship and booster clubs—Rotary, Kiwanis, Lions, and other civic organizations. A towering example of this kind of service is presented by the case of Dr. Hubert Work, Postmaster General and President of the A. M. A. In his home city, a neurologist, he has given time to work on the state board of health, has been a legislator, member of the national committee, assistant to the postmaster general and now is the head of the postal service.

THE GENERAL PRACTITIONER AS A SPECIALIST.

After all is said—and much has been said during the winter months,—this outstanding fact remains: The general practitioner is here to stay, and group practice and diagnostic laboratories are here to stay. Each has a place and ever will have.

It can hardly be gainsaid that the general practitioner as a class is lagging in the onward march of medical progress. The astonishing fact is that the younger men in general practice who have been trained under more modern conditions are not to a great extent availing themselves of laboratory methods of diagnosis.

Home bedside practice in acute diseases will always remain the peculiar function of the general practitioner and is in itself a specialty, and those general practitioners succeed best whose faculty of clinical observation is keenest.

Hospitalization of all cases will ever remain impossible and the field will always remain open for the general practitioner.

The need is for a better equipped general practitioner and for better fees for the better equipped general practitioner.

THE TEMPORARY AMBLYOPIAS.

Sudden and strictly temporary defects in vision frequently give rise to serious alarm on the part of the patient and his friends, and to grave concern in the mind of the attending physician.

The temporary amblyopias referred to are interesting in the general medical sense in that they are not due to ocular conditions per se, but to momentary circulatory changes in the optical centre (cuneus) of the cerebral cortex of one side, or, possibly, in the centres of the two sides. In the latter case there is complete amblyopia, while in the former instance there is half-blindness (hemianopsia) in each eye, the defects in the fields of vision being homonymous, or on the same side in the case of each field.

A sharp distinction must be drawn between the hemianopsias of permanent brain lesions and the brief attacks of this character due to circulatory disturbances, which are devoid of danger.

Accompanying these temporary visual disturbances there is frequently a state of mental inertia and depression—an inability "to think," with a feeling of serious illness.

At times a condition of temporary aphasia of the amnesic type is associated with the visual phenomena, and adds to the seeming gravity of the seizure.

In a short time—generally about one-half to three quarters of an hour—the vision begins to clear and the mental functions to become more natural.

There may, or may not, be headache following the attack showing a condition closely related to migraine. One pathognomonic symptom in such cases stands out prominently as a harbinger of speedy and complete recovery, and this is the presence in the field of vision even in a dark room, or when the eyes are closed, of bright, scintillating, zigzag, or intersecting lines. These lines are constantly in active motion.

This scintillating scotoma does not occur in permanent structural lesions of the brain.

The phenomena described are due to a spasm of the posterior cerebral artery, which causes a temporary anemia of the cuneus on the side involved.

When this vasomotor spasm extends to the arterioles supplying the speech centre the aphasic symptoms referred to assert themselves.

An experience of many years in observing such affections has convinced the writer that in the majority of cases a toxemia is at the bottom of the pathology of such seizures, especially an antointoxication of intestinal and liver origin. In short, the disintoxicating function of the liver seems to be at fault in such instances, and the products of defective intestinal metabolism pass unchanged through the liver and enter the general circulation. The arterial spasm is the result.

The etiology described will suggest the treatment in these cases due to autointoxication.

—J. M. Bannister.

THE INTERRELATION OF HERNIA AND THE PROSTATIC SYNDROME OF THE AGED.

Every surgeon of experience has seen the man past fifty years of age, who has worked hard all his life on the ranch, farm or other place requiring extreme activity, come into the office and display an abdominal hernia of some sort, usually inguinal in type, of very recent origin. He usually tells you that from a boy he has been industrious, done heavy lifting and always been very active, before you get a chance to inquire whether or not he has been exerting himself of late especially.

He decides to have the hernia operated upon, which you do and find following the operation that it is impossible for him to urinate, which is not out of the ordinary, but this case is more obstinate than usual, and even after he is up and around he still complains of the same trouble with the urine and you examine the prostate and find it to be in the pathological class.

What relation exists between these two conditions? We know that at this time, in life the abdominal muscles are liable to be lax and to some extent lose their tone, but we could hardly explain the hernia from this point of view. We must give a thought to the theory of many surgeons to the preexisting congenital conditions in order to have a hernia, yet this is not sufficient explanation in these cases.

Present day pathology seems to have given us the conclusion that prostatic hypertrophy should be considered in the nature of a hyperplasia and not as a neoplasm, and while the amount of disturbance produced in the bladder depends in a measure on the amount of obstruction, it is apparent that the extrusor capabilities of the bladder are undoubtedly affected to a more or less degree in hypertrophied prostates, even though the amount of real mechanical obstruction is very slight. In other words we may have marked retention, very much out of proportion to the size and obstructive nature of the gland.

Physiologists tell us that urination normally is an involuntary act, under the control of a reflex arc, having its center in the lumbar cord, and that the sphincter relaxes and the bladder contracts simultaneously and the urine passes involuntarily, aided in a way by the abdominal muscles much in the same manner as they assist in emptying the stomach in vomiting. Now if anything interferes in such a way as to break down this reflex arc then there is incoordination in the bladder mechanism, the relaxation of the sphincter is out of time with the contraction of the bladder and the urine fails to pass.

Many things are prone to interfere with the working of this reflex arc, namely operations in juxtaposition to the bladder, injuries to the bladder, pathological conditions without and within the bladder, all tending to break down the reflex, and establish incoordination in the mechanism and prevent the normal involuntary flow of urine, and calling into play continued voluntary use of the abdominal muscles as a supernumerary force in emptying the bladder.

In conclusion it would seem that we might well reason that prostatic conditions or any condition of the bladder which might be conducive to retention, thereby causing continued straining, could be and very likely is a factor in the production of abdominal hernias in men past fifty years of age.

—Charles E. Slagle.

OCCULT BLOOD IN THE STOOLS.

In many respects the identification of occult blood in the stools is the most important diagnostic feature in some gastro-intestinal diseases. Frequently the differential diagnosis between functional and organic troubles may depend upon a simple chemical test of the stools revealing the presence of occult blood.

Occult blood represents only blood coming from the upper alimentary tract and its interest lies chiefly in its relation to gastric or duodenal ulcer and carcinoma. A hemoglobin free diet should be followed several days before the stool examinations. Complete elimination of all sources of hemorrhage is a matter of great difficulty. Very small quantities of blood from abrasions about the mouth and esophagus are negligible for clinical purposes. Experiments show that at least one cubic centimeter of blood taken at one time is necessary to obtain a reaction.

The tests best suited for general use are the guaiac and benzidin tests.

In testing the stools it is advisable to use first the more crude guaiac reaction and if negative, then the more sensitive benzidin reaction. A negative benzidin reaction may be taken as absolutely conclusive proof of the absence of blood. Tests more sensitive than the benzidin should not be employed for clincial purposes, since it shows the presence of blood in a dilution of 1 to 300,000. The reaction should show a decided element of blue when positive. Iron and green vegetables are best omitted from the dietary of a patient under investigation. Bismuth has no effect on the reaction.

The interpretations of results are sometimes difficult and the absence of occult blood is not always proof that no ulcer or cancer is present. The reaction is valuable if repeated at frequent intervals and taken in conjunction with all other modern methods used in arriving at a final diagnosis.

—Arthur L. Smith.

DO YOUR DUTY: PAY YOUR DUES.

The annual dues have been delinquent since Jan. 31, 1922. There are a number of doctors who have not yet paid their dues. All of the above should at once do so. If not paid up by the time of the State Meeting you will not be entitled to participate in its sessions. Also if you fail to pay in time you may cut down your county's representation in the house of delegates. Send in your dues at once, and then attend the meeting. On March 17, 1048 members were paid up—a few more than were paid up the same time last year.

—R. B. Adams, Secy.-Treas.

HONOR DR. H. M. McCLANAHAN.

On February 28th the Douglas County Medical Society at the invitation of the Nebraska-Iowa Pediatric Society met to do honor to Dr. H. M. McClanahan. Preceding the meeting the members of the Pediatric Society and a number of the intimate friends of Dr. McClanahan, in the profession had an informal dinner at the University Club with Dr. McClanahan and Dr. Isaac Abt of Chicago as guests.

The large number who attended the meeting showed how high Dr. McClanahan stands in the regard of his fellow workers. Dr. Bridges and Dr. Abt in their addresses gave Dr. McClanahan the praise and commendation to which his 30 odd years of high-minded, straight forward, square dealing with his patients and the profession had surely entitled him.

Dr. Abt brought greetings to Dr. McClanahan from the Chicago physicians and from Dr. McClanahan's fellow members in the American Pediatric Society and said that no man had more endeared himself to the Society than Dr. McClanahan. It is the fervent wish of the Society and of all the profession that Dr. McClanahan may have many years of service ahead of him for the good of his patients and his fellow practitioners.

HEARD IN A HOSPITAL HALL.

"Hullo, kid!"

"Howdy—say, do you know what time I got in last night?"

"No, did the Supt. catch you?"

"I don't know—I am trying to find out. You know I asked my case (she's the henniest thing!) for two hours off after nine last night and just because I had my four hours off in the afternoon, she didn't seem to want me to leave. I'll be glad when the association adopts the twelve hour rule, it will do some of these dames good to pay ninety-four dollars a week for nursing, besides the board bill extra. So—as I was going to say—I was out with Dr. Feaster, you know. Say, he's the real thing! Swell's the only word. We drove clear to Metropole and back and had the loveliest lunch at the Imperial,—he's no tightwad. Did you ever notice his eyes? Well, it was a little after eleven when I got in and my case hadn't gone to sleep,—had pains she said, and by the time I got her relieved and settled it was past two o'clock. Well its too bad, of course, to have her suffer, but she can't expect me to deny myself everything. You only live once. How is your case better? You always have the luck getting easy cases. Well so long, don't you dare make eyes at my M. D. if you spy him. I have a claim there."

—Dora Bower Eckles.

DAMN THE TELEPHONE, BUT BLESS HARNEY 1115

A blessing has descended unannounced on the head of the hurried doctor. During the last six months in Omaha the Physicians and Surgeons' Exchange has handled 100 calls for him. No longer does he or friend wife sit at home or at the office with the telephone as the proverbial ball and chain. Now he steps to the phone—calls Harney 1115, says where he is going and how long—cranks up the old Ford and goes on his way. If good business calls while he is gone then G. B. calls the next number in the book which says—"if no answer call Harney 1115" and Mr. or Mrs. Exchange answer at any hour of the day or night, takes the number or the call and gets busy and finds the doctor—either where he has checked in from or off the card index which registers his favorite haunts.

If Long Distance wants him and can't locate him, then Long Distance gets him through the Exchange instead of saying "You can't talk to the party until 6 o'clock." If you want a nurse—that is, a real graduate and wants to work—call the Exchange. If you want to see a good show and not feel worried you are losing the price of the tickets in lost business—gee but its a grand and glorious feeling to call in to the Exchange and find business waiting or to get home and have the Exchange on the phone saying, "Call Mrs. Jones—the baby is sick." As long as she got the call in she will wait for you and not call Dr. Blank who is getting in on your best families.

"There is that telephone ringing again—Hello—Oh yes, the Exchange—Mr. Shekels tried to get me at the office and central said no answer—why the dern phone hasn't rang in a half hour—sure I'll call him—Bang—Receiver—Damn the telephone but bless Harney 1115.

Signed—

A doctor who belongs to the Exchange.

THE COUNCILORS' BULLETIN.

February 18, 1922.

At the annual meeting of the Board of Councilors, it was voted that the undersigned issue a bulletin to be sent to the presidents and secretaries of the component county medical societies of the state, the idea being to promote and build up a more united organization and better cooperation between the county society and the Councilor of each district. This will be a good way for county secretaries to give us their ideas and keep up an exchange for the good of all of us, therefore we will appreciate your sending in your ideas and will see that they are properly sent out in the next issue of the bulletin, which will come to you quarterly.

We want to urge you secretaries to be sure and mail a program of each meeting to the Councilor of your district and to the office of your State Journal, as it is of interest to the other county societies to know of the good things you are promoting in your county. As secretaries you are the news reporter for the Journal and therefore, we look to you for data, as items of news come up in your county, to transmit the same to the Journal office; also to keep us advised on deaths in the profession.

According to our Constitution and By-Laws, dues for each member for 1922 should now be in the office of the state secretary. Every one of your members that has not been properly accounted for will be automatically dropped and will not receive the Journal nor be entitled to the protection of the Medico-Legal Defense. Therefore, if you have any men who are delinquent on account of not having paid their 1922 dues, get them on the phone at once and impress the fact upon them that their money must be sent in. Not only that they may receive the Journal regularly, but that they may have an opportunity to attend the State meeting, which will be held the last week in April in Omaha.

What is your idea of having a meeting of all the county secretaries at our State meeting? Write me at once about this, and if a majority favor the plan, we will arrange with the program committee to give us a place for the meeting.

We wish you would give us the dates of your next medical society meeting and how often you meet; also if your program is made up of local men in your county, or if you have outside talent; and then what the success of each has been. We want to make this a real clearing house for ideas, so be sure to give us yours NOW.

Faithfully yours,

A. P. OVERGAARD, Secretary of the Council.

NEBRASKA STATE MEDICAL ASSOCIATION, SCIENTIFIC PROGRAM.

Annual Meeting, Omaha, April 24-27, 1922. Headquarters, Fontenelle Hotel.

Tuesday, April 25th, 9:00 A. M.

1. Prognosis and Treatment of Sinus Disease in Children. H. B. Lemere, Omaha.
2. X Ray Treatment of Toxic Goiters. E. W. Rowe, Lincoln.
3. Purpura Fulminans. Norman T. Johnston, Upland.
4. Epigastric Hernia. A. J. Brown, Omaha.
5. The Eye and its Relation to Internal Medicine. W. L. Albin, Lincoln.
6. Obstetrics—A Science or an Art—Pathological or Physiological. A. B. Somers, Omaha.
7. Fractures of the Radius. W. L. Sucha, Omaha.

Tuesday, April 25th, 1:30 P. M.

1. President's Address. B. B. Davis, Omaha.
2. Review of 23 Cases of Pyloric Stenosis. J. A. Henske, Omaha.
3. Second Rupture of the Uterus Following Pregnancy. F. B. Young, Gering and F. W. Plehn, Scottsbluff.
4. Idiopathic Epilepsy. G. A. Birdsall and H. E. Harvey, Fairbury.
5. Local Anesthesia and General Surgery. A. I. MacKinnon, Lincoln.
6. Optic Atrophy. Sanford R. Gifford, Omaha.

Conference of County Secretaries at 5:00 P. M.

Wednesday, April 26th, A. M.
Clinics.

Wednesday, April 26th, 1:30 P. M.

1. Oration on Surgery. S. R. Hopkins, Hastings.
2. When and How to Treat Disease of the Gallbladder. J. B. Deaver, Philadelphia, Pa.
3. The Management of Acute Retention of Urine with Special Reference to the Enlarged Prostate. J. E. Summers, Omaha.
4. Wing Shots in Surgery. Harry Everett, Lincoln.
5. Epidemic Encephalitis in Relation to Anterior Poliomyelitis. F. Heagey, Omaha.
6. Unusual Types and Sequelae of Epidemic Encephalitis. F. E. Coulter, Omaha.

Thursday, April 27th, 9:00 A. M.

1. Nonspecific Parental Therapy. C. H. Bastron, Lincoln.
2. Fundamental Principles Governing Radiation Therapy with Clinical Results Possible. A. F. Tyler, Omaha.
3. Paper by H. Von Schulte, Omaha.
4. Symposium on Primary Carcinoma of the Lung.
   Clinical Cases. W. O. Bridges and R. A. Moser, Omaha.
   Pathological Findings. M. G. Wohl, Omaha.
   X Ray Findings. A. P. Overgaard, Omaha.
5. Oration on Medicine, R. W. Fouts, Falls City.
6. Address on Medicine, George Dock, St. Louis, Mo.

Thursday, April 27th, 1:30 P. M.

1. Overmedication in Infancy and Childhood. W. O. Colburn, Lincoln.
2. Consultants I Have Met. Morris Nielson, Blair.
3. Chronic Cystic Mastitis. Max Emmert, Omaha.
4. Duodenal Ulcer. H. J. Lehnhoff, Lincoln.
5. The Cancer Question. Palmer Findley, Omaha.
6. Medical Aspects of Brain Tumor. G. A. Young, Omaha.
7. The Radical Mastoid Operation, E. B. Brooks, Omaha.

THE OMAHA MEETING.

By the time this paragraph reaches the reader the Annual Meeting will only be about three weeks away, and the Secretary takes the last opportunity to urge every member to be present. Those in charge of the meeting say that it is going to be the best yet given by the association, and judging from the programme, which is printed on another page, it can be safely said that this meeting will be well worth attending. So, remember April 24-27, at Omaha. Make your plans so that you can be there for the full time. Bring another doctor with you. Make this the biggest meeting on record.

—R. B. Adams, Secy.-Treas.

THE ST. LOUIS MEETING OF THE AMERICAN MEDICAL ASSOCIATION

The arrangements of the St. Louis profession for the meeting places for the Session of the A. M. A., which is to be held in their city May 22-26 next, are singularly fortunate and convenient; never has the Association been so well favored in this respect. The district in which the meeting is to take place is at the west edge of the business section of the city, easily accessible from all directions by street car or otherwise and not more than fifteen minutes street car ride from the most distant hotel. The grouping of the meeting places is so compact that should one walk from the Registration Building (Moolah Temple) to the farthest hall it can be done in ten minutes or less; from section to section is a matter of from one to five minutes. The convenience of the location and arrangements of the different halls is more outstanding than in any other city in which the Association has met, and a decided improvement over the accomodations which were had at the meeting in St. Louis, 1910.

The Registration office, Post Office and Commercial Exhibit is to be in the Moolah Temple (Shrine), a beautiful and commodious building on Lindell Boulevard, two blocks west of Grand Avenue. At the other extremity of the group is the Odean, the home of the St. Louis Symphony Orchestra, with a main hall which seats better than 2000, and several lesser halls. The main hall will be used for the opening session. Its acoustics are particularly good and suited to our purpose. The Sections on Practice of Medicine and of Diseases of Children meet here. In the assembly hall of the same building the Sections on Pharmacology and Therapeutics, and on Pathology and Physiology will meet. (It will be noted that there has been an aim to foregather closely allied sections.) The Sheldon Memorial, a very beautiful new hall on Washington Avenue one-half block west of Grand Avenue, which most admirably meets all requirements, will be the meeting place of the Sections on Ophthalmology, and

Laryngology, Otology and Rhinology. The Section on Surgery, General and Abdominal, and on Obstetrics, Gynecology and Abdominal Surgery, will be held in the Third Baptist Church on Grand Avenue, a situation well suited to the demands. The Sections on Orthopedics and Nervous and Mental diseases will meet in the Law School of the St. Louis University, on Lindell Ave., a few steps west of Grand. The hall easily seats 500 and is both comfortable and convenient. Dermatology and Syphilis and Urology will use the large Union Methodist Church, on Delmar Avenue just west of Grand, which meets every requirement. The Sections on Gastro-Enterology, Proctology and on Preventive Medicine will use the large hall in the Musicians Club on Pine Street, east of Grand Ave., and next to the building of the St. Louis Medical Society, where the House of Delegates will hold its sessions. The Section on Stomatology is assigned to the assembly hall of St. Peters Parish House, one block west of Grand on Lindell. Immediately in this district will be found three of St. Louis's most important Clubs, the St. Louis, University and the Columbian. Restaurant catering to every grade of patronage are numerous in the district and precautions have been taken to insure that normal rates continue during the meeting.

The St. Louis profession is preparing for an unusual attendance; hotel reservations are coming in rapidly but it is purposed that even the late comer shall be comfortably housed. The wise traveler, however, makes his reservation as early as he finds it possible. Dr. M. B. Clopton, 3525 Pine St., St. Louis is Chairman of the Committee on Sections and Section Work.

ARKANSAS MEDICAL SOCIETY

Office of Secretary-Editor
Little Rock, March 1, 1922.

Dear Editor:

The motif of our coming annual session to be held in Little Rock, May 17-18-19 next, is to be the "home coming meeting" and we are very desirous of informing our old time doctors from Arkansas, now practising in other states, and stressing the fact that we shall expect them to be with us at the time indicated. This will be especially applicable to those desiring to attend the meeting of the American Medical Association, at St. Louis; as they can stop off with us, renew old acquaintances and resume their journey.

We shall appreciate it very much if you will carry a suitable news item in your JOURNAL, setting forth our good intentions, that those in your state may be reminded of the invitation extended to them. This may seem unique; but in the ever changing present the unexpected happens daily. Therefore, we are relying on the cooperation and active assistance of our friends in putting the meeting over.

Thanking you in advance for any courtesy you may be able to extend us and trusting that we may have a visit from you along with the others, we are

Most cordially yours,
Wm. R. Bathurst,
Secretary-Editor.

THE SOCIETIES.

The **Tenth Councilor District** Medical Society met at Grand Island, February 8, fifty doctors being present. A good program was presented and a general good time was had. Dinner was served in the private dining room of the Koehler hotel.

Councilor R. D. Bryson, Calloway, opened the program with a paper on "Some Problems Which Must Be Met"; Dr. C. J. Miller, Ord, Dr. E. A. Watson, Grand Island, Dr. L. M. Stearns, Kearney, and Dr. A. J. Brown, presented papers.

At the regular meeting of the Adams County Medical Society held in Hastings, February 15, 1922, the following officers were elected:

Dr. R. D. Martin, President; Dr. W. T. Carson, Secretary-Treasurer; Dr. E. B. Hamel, Delegate.

It was decided at this meeting that at the next regular meeting we would have a clinical program. The next regular meeting will be held Wednesday evening, March 8, 1922.

The regular meeting of the **Box Butte Co.** Medical Society was held at St. Joseph's Hospital, Alliance, March 2nd. Plans for district meeting to be held here were discussed and program arrangements made. Paper of the evening was read by Dr. Geo. J. Hand on "Ectopic Pregnancy." The etiology, symptomotology and treatment were discussed with report of a case.

The **Knife and Fork Club of Lincoln** and **The Lancaster County Medical Society** held a joint dinner and meeting at Lincoln on the evening of March 16, 1922. At this meeting Dr. Frank Billings, professor of medicine at Rush medical college was the guest of the evening. Dr. Billings chose as his subject "Modern Medicine." He said that we could not think of modern medicine without giving great credit to ancient and medieval medical teaching. Modern medicine began with the discovery of the microscope which opened an unseen world. This instrument made possible our present knowledge of bacteriology, biology and pathology. The sciences of chemistry and physics were developed hand in hand with these others and all had their share in modern medicine. Dr. Billings in words understood by the laymen, explained the discoveries which have to do with infection, the development of toxins and antitoxins and the various sera. He told of the wonderful work both in prevention and cure that had been the results of these discoveries.

Dr. Billings then described the founding and development of The American Medical Association; its aims and work done: The work of the Councils on Education, Pharmacy and of the growth of the Journal. While on this subject he brought up the different cults saying that while each had an element of truth in them, none could cover the whole field, and that organized Medicine in its move against them was simply trying to require that all who praticed the healing art must live up to the same standard.

Dr. Billings last thought was the family doctor. He is dissappearing due to the specialism which today is overdone. This must be changed and the family doctor brought back into his own, as his place in society can be filled by no one else.

—R. B. Adams.

HOSPITAL NOTES

The Falls City hospital, a plant that cost $125,000, has been closed for want of financial and professional support.

A Community hospital has been opened at Nebraska City by Mrs. Margaret Torsick, R. N. in the Turner residence.

The Platte Valley hospital, North Platte, is to become the nucleus of one of the Methodist hospitals of the state, the property having been transferred to the Methodist hospital board, by its recent owner, Dr. John M. Twinem, at a considerable sacrifice.

The William Jennings Bryan home in the suburbs of Lincoln, offered some time ago to the Presbyterian hospital board for hospital purposes, and declined, has passed into possession of the Methodist hospital board and is to become the nucleus of the projected Methodist hospital for Lincoln.

For Sale or Exchange—Twelve bed, two story brick hospital. Good office and living rooms, in good town northeast Nebraska. Fine farming country. Collections excellent. No competition. Address Nebraska State Medical Journal, Omaha.

NOTES ABOUT THE DOCTOR

Dr. and Mrs. Newell Jones visited in Denver recently.

Dr. J. F. Cross, formerly of Omaha, has located at Shelton.

Dr. and Mrs. Frank Coulter, Omaha, have recently made a trip to the Great Southwest.

Dr. and Mrs. Harold Gifford, Omaha, have returned from a midwinter trip to British Guiana.

Dr. H. B. Matheny, formerly of Lincoln, has become associated with Dr. C. E. Lewellen of Bayard.

Dr. J. P. Weyrens, Alliance, has been appointed a surgeon for the Burlington railroad at the above place.

A woman physician of Omaha, recently tried for criminal abortion, was acquitted by the jury after 30 minutes deliberation.

Dr. W. H. Byerly of Franklin, who had a stroke last fall, has just returned from an extended visit in Missouri. He is not able to practice yet.

It is reported that Dr. C. L. Fahnestock, Lincoln, is to become associated with Dr. J. M. Willis, McCook, in the practice of medicine and surgery.

Dr. and Mrs. Floyd Clarke, Omaha, have sailed for a three months stay in Europe. The doctor will visit some of the continental pediatric clinics.

Dr. Leland Walker, who is said to have been Seward's first physician, and who resided there from 1867 to 1890, died in Washington D. C., Feb. 5, 1922, in his 96th. year.

Dr. Emil C. Underberg, Stanton, has retired from practice after 32 years of service to the community. Dr. W. R. Peters of the same place has taken over the office and fixtures of Dr. Underberg.

Dr. L. A. Powell, formerly located at Adams, Hebron and Superior, more recently a resident of Topeka, Kans., has been appointed superintendent of the state soldier's home at Dodge City, Kansas.

Dr. Frank Simon, for some years head of the medical department of the Commonwealth Insurance Co., Omaha, has taken a similar position with the Standard Life Insurance Co., St. Louis, and has moved to the latter place.

BOOKS RECEIVED.

Lessons on Tuberculosis and Consumption. By Charles E. Atkinson, M. D. Cloth. Pp. 470 with illustrations. Price $2.50 net. New York and London: Funk and Wagnalls Company, 1922.

The Mechanics of the Digestive Tract. By Walter C. Alvarez, M. D. Cloth. Pp. 192 with 22 illustrations. Price $3.50 net. New York; Paul B. Hoeber. 1922.

Abdominal Pain. By Prof. Dr. Norbert Ortner, Vienna. Authorized Translation by Wm. A. Brams, M. D. and Dr. Alfred P. Luger, Vienna. Cloth. Pp. 362. Price $5.00. New York. Rebman Company, 145 W. 36th St. 1922.

Consumption Cures, Cough Remedies, Etc. Prepared and Issued by the Propaganda Dept. of the Journal of the American Medical Association. Pamphlet of 124 pages. Price 15c. Chicago. 1922.

Alcohol, Tobacco and Drug Habit Cures. Prepared and Issued by the Propaganda Dept. of the Journal of the American Medical Association. Pamphlet of 31 pages. Price 15c.

Deafness Cures. Prepared and Issued by the Propaganda Dept. of the Journal of the American Medical Association. Pamphlet of 43 pages. Price 15c.

TREATMENT OF FRACTURES OF METACARPALS AND PHALANGES OF FINGERS

The method presented by Ralph H. Wheeler, Chicago (Journal A. M. A., Feb. 11, 1922), is said to be most appicable to fractures of the proximal phalanges and metacarpals, but can be used successfully in fractures of the middle phalanges. The secret of extension of the fingers lies in something that can be attached to the skin which will not slip and at the same time not restrict circulation any material extent. This can be accomplished with a strip of gauze bandage and a glue made of celluloid and acetone. To make this glue, enough celluloid (Wheeler uses scraps obtained from automobile top manufacturers) is dissolved in acetone to make a solution of the consistency of mucilage. The most satisfactory method is to glue a loop of gauze to each finger on which extension is desired, and while the glue is drying put a plaster-of-Paris cast on the forearm, extending from the fold of the wrist to within about 2 inches (5cm.) of the fold of the elbow. In this cast a wire loop, which is so adjusted as to project 2 or 3 inches (from 5 to 7.5 cm.) beyond the finger or fingers to be extended, is incorporated. In this method counterextension is made against the bulge of the muscles of the forearm; hence, in putting on the cast, but little padding should be used, otherwise when extension is applied it will crowd up. After the plaster hardens, the wire loop is adjusted to the line in which extension is desired and then a piece of rubber tubing is passed through the gauze loop attached to the finger and over the wire loop, and made fast with as much strain as is desired. Experience has taught that care must be observed not to put too much strain on, because blistering of the skin will follow and the gauze loop will loosen. In the few instances in which this has occurred, another loop has been applied, using the palmar and dorsal surfaces when the first loop was attached to the sides and vice versa, and extension continued without interruption. The method is particularly adapted to compound fractures because it allows free access to wounds.

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COOPERATION IN MEDICINE,—THE SPIRIT OF THE TIMES.[*]

Byron B. Davis, M. D., F. A. C. S., President, Nebraska State Medical Association, Omaha, Nebraska.

The profession of medicine is essentially altruistic. The cold unsympathetic individual had best steer clear of it. It invites with especial warmth those who are endowed with plenty of the milk of human kindness and a spirit of service. The man or woman who has a strong desire for financial gain is not attracted by it. It is a jealous taskmaster and its devotees must delve hard and long in preparing themselves to become its disciples and must be tireless in their devotion to duty after entering its portals.

The doctor's function is not simply to administer to the diseased body. His work is more complicated than that. The patient's state of mind has more influence on the action of therapeutic remedies than we usually consider. Cheerfulness responds more readily than depression. The more optimism the medical attendant can instil into his patients the more successful he will be. Every doctor needs to be a psychologist, not an offensive psychologist, and not a preacher of psychology, but he must be able to control the minds of his patients without appearing to do so. He must be quick to detect when his patient is mentally depressed and swift to give the needed bracer. We often marvel at the success and popularity of men whom we know to be only moderately endowed with knowledge of medicine; these are the men with sanguine temperaments, who emit optimism and really get better and quicker results than some more liberally endowed scientifically who fail to take account of the power of suggestion.

A shock, or severe mental depression will stop digestion. Is it not fair to suppose that the best effects of remedial agents will be lost or minimized if the patient is hopeless or discouraged? This is not an argument for foolish optimism, but for a cheerful buoyancy in the sick room. The patient is ill bodily, and often mentally as well. If convalescence can be accelerated by cheerfulness, we have no right to ignore this element.

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[*] Presidential Address, delivered before the annual meeting of the Nebraska State Medical Association, Omaha, April 25, 1922.

All will agree with Dr. Frank Billings that the purpose of the doctor is "the amelioration of suffering and the prolongation of life." To this ought to be added one or two other functions the physicians must fulfil, if he lives up to his full duties. He should teach his patients how to practice good personal hygiene, to maintain healthful conditions in and about his home, and not to endanger the health of his neighbors. In addition he should aid the health department in the prevention and control of disease and in the promotion of the health of the community. Are we doing enough to help the department of health in our towns and in the State? It has seemed that more active cooperation would be of inestimable value. It is a part of our functions and would be of immense assistance to our health authorities and would add greatly to their efficiency.

The doctor who does not have enthusiasm for his work should quit and try something more congenial. He who practices medicine solely or chiefly for the financial returns has made a mistake and should enter the ranks of sordid business. When one notes the modern commercial spirit that seems to be getting some members of the medical profession by the heels, it makes one wonder if we are not wandering too far away from the ideals of our ancestors. If each of us would take the time to look himself squarely in the eye and ask himself if all his methods are such as be willing to submit to a jury of the friends whose good opinion he values most, it would be good for the soul.

I am not here to preach, but wish to express this thought,—that it is greatly to be desired that each and all help to add luster to the profession to which we are proud to belong, not only by skill as physicians but by unimpeachable personal integrity. Let it not be said that a single member of this great society will ever be instrumental in lowering the standard of dignity and respect which by tradition and by right belongs to the healing art!

Someone has said that the three great assets of medical men are honesty, good judgment and scientific training. When a patient consults a physician, he selects that special one because he has confidence in his skill, his judgment, and his honesty. When a physician accepts a case he enters into an implied contract,—no less binding than if it were written, that he will exercise his skill, his judgment, and his honesty to the best of his ability. This contract demands that he will be as painstaking and honest with every patient as he would want another physician to be with a member of his own family under like circumstances. The patient is entitled to the very best that his selected physician can give. That is our responsibility.

THE TRAINING IN OUR COLLEGES.

Much criticism has been directed recently against the modern medical college training. Is there a tendency to develop specialists to the neglect of the teaching needed by the men destined to become general practitioners? If the answer is in the affirmative, the college is failing to fulfill its true function.

Every new graduate should have a fair general knowledge of medicine. His college training should go as far as possible towards supplying him with the implements needful to go out and care for the sick. If he graduates with more knowledge of how to localize a brain tumor than how to treat a cold, his training has been faulty. If he is wiser to the technique of removing the gall bladder than treating a boil, his teachers have fallen short. There are many times more colds to relieve than brain tumors to localize; there are many more boils to be cured than gall bladders to be removed.

Is the new graduate prepared to look after the ordinary everyday ills that are met by the thousands or have his chief energies been directed towards the rarer, more difficult, and more dramatic conditions that he will never be called upon to treat until he has had a lot of special training? Even the asking of such questions conveys a criticism of the present methods in many of our colleges.

It is not my purpose to arraign the colleges. Those who have read the proceedings of the recent meeting of the Association of the American Medical Colleges will realize that the college authorities are waking up to the fact that the majority of their students desire to be fitted to be general practitioners, and that the small percentage that will finally enter some specialty will be much better specialists if they are good general practitioners first.

The old idea that a man should graduate from general practice into a specialty by the natural process of development had much to commend it. Profound knowledge of a certain limited portion of the body is dangerous, unless there is also a clear general knowledge of the physiology and pathology of the body as a whole and a definite idea of the interdependence of the various parts. Isolated pathology does not exist, it is only a part of a complicated machine.

THE STATUS OF THE GENERAL PRACTITIONER.

Many pessimistic statements have been current during the past few years about the passing of the family physician. When the family physician ceases to be there will no longer be a medical profession. There is not in the world any body of men so necessary to the welfare of the people or who wield so much influence on their everyday lives as the family physicians. The world is passing through a period of unrest and the man in general medical practice shares in the upheaval. He has good reason for being dissatisfied with the conditions under which he is laboring. I am glad this dissatisfaction exists. It augurs well for the future. All great progressive movements have had their birth in dissatisfaction. The satisfied person never progresses. Perfect contentment would have prevented all the wonderful inventions which have made life so much worth while, and would have held the world in the shadow of the dark ages.

There is good ground for complaint, but the general practitioner has it in his power to remove the burdens which seem to load him down. What are his main causes of unrest? Poor facilities for working out his cases, lack of hospitals, a tendency for his patients to leave him and go to a city specialist, a loss of the old time confidence of the patient for his family physician, inadequate financial returns, uninteresting environment for himself and family. It is not in my power to offer an unfailing panacea for all these ills, but truly believe there are remedies, if they can be discovered.

Unfortunately the progressive medical man of today has fallen heir to a heritage from the past generation. I remember well when our old family doctor made a call, he first looked at the tongue very perfunctorily, and felt the patient's pulse. Then he opened his case, made up some powders and put some drops in a glass and directed that the two kinds of medicine were to be taken alternately; and I remember how similarly these medicines tasted and looked no matter what the symptoms for which they were given. He set a fee for this kind of attention, presumably in accordance with the value of the services.

Since then medical knowledge has expanded many fold. At that time two short courses of lectures were all that was required to fit a boy just out of district school to sign himself "M. D." and start out in the practice of medicine. Considering what their training was, many of these doctors were ornaments to the professions, and we ought to hold in the highest respect these pioneers who assisted in elevating the medical art to the plane it now occupies. The man who graduates today will have devoted at least eight times, as much hard work and at an expense many times more than the graduate of forty years ago. If he does his duty, his examination of a case will be many times more thorough, consume much more time and will be inestimably of more value, and the results of his treatment correspondingly good.

Because of modesty, poor business, fear that his doctor brother across the street will not cooperate, or a feeling that the people will not stand it, the fees charged are only slightly greater than they were in the good old times when a tongue inspection and pulse palpation constituted the sum total of a medical examination and diagnosis. A continuance of the present fee system in rural communities is not good business sense. If the examination is thorough, business-like and painstaking, the people will be willing to pay. We cannot expect them to declare the present schedule of fees too low and insist on paying more. That is not human nature. A raise in fees must come through the doctor himself.

If a doctor in a smaller town charges three dollars for making a careful examination, and a man in the city charges thirty dollars for an examination no more thorough, the patient naturally concludes that the city man's services are worth ten times as much. It is, no doubt, a truism that the people measure the worth of our services by the value we put on them.

AN EXPERIMENT IN COOPERATION.

I would like you to use your imagination a bit and we will visit an island well out in the ocean. The soil happens to be about as fertile as that of our Nebraska land, if you can imagine an island so greatly blessed, and in area is about the size of one Nebraska's counties. It has a population of 20,000 and twenty doctors look after the needs of the people. There is one fair sized town, which we will call the county seat, and several small towns.

This island, to give it an air of romance, we will call Utopia. These twenty doctors all work independently, each leads his own narrow selfish life, each shrugs his shoulders and looks bored, when the name of any of his fellows is mentioned; in fact their lives go on much the same as they would if they lived in the states. This state of affairs continues for several years, They, too, are dissatisfied. They talk occasionally, of forming a medical society; one or two sporadic efforts are made to get together for this purpose, but the meetings are poorly attended and not much warmth gets into them. All feel that something is wrong, but each has the feeling that the fault lies with the others. They are very human. All are dissatisfied and wish conditions were different but none of them have any remedy for the trouble.

Finally one of these doctors, a little more discontended than the others, sees a vision or dreams a dream. He sees how little each man can do by himself. He realizes that the people are not getting a square deal and that neither he nor his colleagues are living up to the principles of a great profession. He recognizes that the people do not hold them in any especial esteem, and that their influence on the island is almost nil. They are, to be sure, called in times of illness, but they are not considered factors in the body politic. Observing citizens notice the lack of cooperation among the doctors and do not place a high estimate on a profession which shows so little good fellowship; they feel no little contempt for the members of such a profession.

The man who has seen the vision, Dr. Thomas More, conceives how all this could be changed by organization, cooperation, team work, and proceeds to develop his plans. He begins systematically to win his colleagues over to his ideas. One by one they are lead to see the force of his arguments, and so convincing has he been, that every doctor on the island is present at the meeting called for puttng his plans into execution. His whole scheme is talked over freely and enthusiastically. All are so dissatisfied with existing conditions that they are willing to make any sacrifices which promise to render their work less of drudgery, increase their efficiency, and make them real factors in shaping the affairs of the island.

Meeting for a common purpose, these men, previously cold and unresponsive towards one another, begin to see undiscovered virtues in their colleagues, and for the first time begin to see the greatest truth of all, that what is good for one is good for all. This meeting proved to be the birth chamber of the spirit of cooperation on the Island of Utopia.

The first move made was the establishment of a clinical pathological laboratory to which could be referred all except the simplest pathological work. Much work which it had been impossible in their own little poorly equipped laboratories could now be done for them,—as for instance tissue examinations, blood cultures, preparing sera, computing basal metabolism, Wasserman tests and so forth.

Having planned the laboratory, the next step was to get a man to run it. To their great surprise one of their own number was found to have had exceptionally good laboratory training, and his tastes ran in that direction. He did not like the practice of medicine and would long since have gone into laboratory work exclusively, if he could have seen a way to succeed in it financially. He was selected as island pathologist and, by dropping out of practice, left a little more work for the others.

The laboratory succeeded beyond expectations. By having recourse to scientific laboratory research in working out his cases every man gained new interest in his work, became a better doctor and increased the real value of his services. More than that it gave them a practical insight into the meaning of the word "cooperation." This was the start. Almost immediately they began to realize how little use their little dinky X ray machines had been—most had ceased to use them at all because, when needed, they were usually out of order. A first-class X ray plant was installed and in the same manner in which a laboratory man had been found, a roentgenologist was discovered and put in charge.

Practice of medicine in Utopia by this time was becoming interesting and a feeling of more contentment was apparent. There was soon developed a growing demand for still more specialism. There was real need for an expert in diseases of the eye, ear, throat and nose and it was easy to find one of their number who had had some training along this line and a natural aptitude. It was soon agreed that a well trained surgeon was greatly needed capable of performing the more difficult major operations. Such a man was found.

As each man dropped out to go into a specialty those remaning in general practice found their own services were in greater demand. They were also firmly impressed with the idea that a few specialists were absolutely needed, and they also learned the lesson that general practitioners and specialists are of mutual benefiit, if the best professional results are to be achieved. They also found that their work was pleasanter. Their efficiency was doubled. The whole medical fraternity of the island met frequently, discussed cases, and diseases, and methods, and how to improve their results. From medical hacks they had developed into wide awake, progressive enthusiastic, scientific gentlemen. Not one regretted the passing of the old regime.

At the very beginning the financial side of the question was given careful consideration. The increasing value of the medical services rendered the people of the island was so apparent that a considerable increase was made in the fees charged. The people, after having the situation fully explained, submitted to the increase because they realized that the higher fees were more than compensated for by the increased value of the services they were receiving; or, as a level headed farmer remarked: "I would rather pay a high price for a good article than get a poor one for nothing." All these doctors had started in as general practitioners and the specialists existed because of the general consent to meet the definite needs. Realizing this fact, the men doing special work, instead of making ridiculously high charges, were content to measure their services and make them proportional to the fees of the general practitioners. In the end all were better off financially, professionally and spiritually.

Another most important change was soon apparent in Utopia. In only a few months the people had executed an about face in their evaluation of the medical profession. The doctors were taken into the important counsels, their advice was asked about all matters pertaining to public health and in almost all other subjects of interest their opinions were solicited. Instead of nonentities these doctors had become vital influences in all questions of importance to the welfare of the island. The people noted that Drs. A., B. C., and D. had become friends and counseled together, stood up for each other and had developed a generous and all embracing professional pride. The conclusion was that if these doctors esteemed each other they were worthy of the esteeem of the public. With all the inhabitants so thoroughly satisfied with the medical profession, it would have fared ill for any "ism" to have tried to raise its head on the Island of Utopia!

When the cooperative spirit had reached this state of developement and the people of the island had become convinced that doctors do not exist solely for their own selfish ends, but are devoting themselves to the benefit of the community, a very important medical meeting was called to discuss ways and means for making their cooperative principle still more valuable. Every doctor on the island was present. The object of the meeting was to start a movement for the establishment of a hospital; not a one-man hospital, nor a two, or three, or four-man hospital, nor a limited clinic but a hospital in which every man practicing medicine in any of its branches would be equally interested. Many patients were badly in need of hospital treatment. More than that a hospital would make it possible to work out many obscure cases that could not be adequately attended to at their homes. It was the purpose that it should also serve as a sort of fraternity house where every doctor on the island could come to get renewed inspiration for his daily tasks.

But a hospital of the class needed would cost a great deal of money. The expense would be too great a burden for the medical men to carry alone, and moreover the chief beneficiaries of this project would be the 20,000 inhabitants of the island. It would be for the general good and should be paid for out of the general funds. Only one short year before, when each doctor was pulling for himself and before the birth of the cooperative spirit, if the public had been asked to build a hospital, the request would have been met with ridicule. Now, how different! When every doctor in Utopia joined together and, presenting a solid front, explained the subject clearly, showing the needs of such a hospital and the benefits the people would receive, it was an easy matter to induce them to vote bonds sufficient to erect a hospital that would fill all requirements.

With the completion of the hospital the medical efficiency of this island has reached high water mark. Every man has more than doubled his value to himself and to the community. Collaboration in the diagnosis and care of cases can be carried out to the finest detail. Of course the laboratories were installed under the hospital roof and the equipment for team work, in the best sense, was complete.

An important detail arranged for was that, when a family physician brings a patient to this hospital he does not simply turn him over and lose sight of him, but becomes one member of the team which is pulling together for the benefit of this most fortunate patient. It gives the average patient a most comfortable feeling to know that his trusted physician, who is also his personal friend, is in close touch with him all the time. Many suffer tortures when in a strange hospital, under the charge of strange doctors and with the feeling that they have no friend at court. No matter how much confidence they may have in the skill of the doctor in charge, their convalescence is made smoother if they know their home doctor has his hand on the steering wheel.

Ladies and gentlemen, this is not a mere Utopian scheme. If it would work on an island it would work as well in any of Nebraska's equally populous counties or communities. All that is needed is the proper cooperative spirit. The many clinics that have been established have shown the need of team work and the possibilities in intelligent collaboration. There is no reason why all the doctors in each organized community center should not share in the benefits. It is not a thing that should be monopolized by a few, but every qualified and reputable medical practitioner is entitled to have a part in the movement.

Before these ideals can be fully realized it will be necessary for doctors to understand that they can work with others and be willing to do so fairly and honestly that they can increase their efficiency by collaborating with their colleagues. Some will have to curb their spirit of jealously, become less narrowly selfish, and realize that even four mules can accomplish more when they pull together than when they pull apart.

Such an arrangement of work will not take away anybody's individuality, but everyone will become stronger from a free interchange of ideas and by arguments honestly entered into in order to get at the truth. Each layman will continue to have the opportunity to choose his own family physician and the bond between the family and the physician will be more closely knit than under the present regime. A spirit of fair play, honest dealing and a real desire to faithfully discharge his responsibility to his patient is all that is required to put the family physician in his true place. The family physician is a necessary and vital factor in the public welfare, and no reorganization of our methods could ever supplant him.

I feel certain that medical centers shaped somewhat along the lines outlined will spring up in many parts of Nebraska. Every center will have a hospital large enough to supply the needs and good enough to give first-class service. Every center will have a well equipped laboratory. Competent laboratory workers will not be hard to find when there is a real demand for them, and proper financial returns are assured for such work. With such a laboratory man to help out in cases requiring it and access to an up-to-date hospital, practice in the more sparsely populated districts will lose its more disquieting features and a large percentage of the patients now sent away for diagnosis and treatment will be equally well cared for at home. If the profession becomes organized on correct lines every community will be found to contain all the potential elements necessary to establish a really good clinic.

ACUTE ILEUS: DIFFERENTIAL DIAGNOSIS.*

Donald Macrae, Jr., M. D., F. A. C. S., Council Bluffs, Iowa.

Acute obstruction of the bowel is a surgical disorder. It is a condition demanding immediate attention. Much more has been said and written concerning the operative treatment than of the diagnosis. In spite of this the mortality remains 100% in non-operated cases and from 50 to 75% in the operated.

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*Read before the Nebraska, Iowa and South Dakota Section, American College of Surgeons, Lincoln, Feb. 7 1922.

Acute obstruction may occur at any time of day or night; in the city as well as in the remote corners of any county. It attacks old and young, rich and poor alike. It rebels against exhaustive laboratory or X ray tests. It is a selfish disease demanding your undivided attention and immediate action.

The writer admits a diagnostic defeat in many cases of acute abdominal conditions, but only after a most thorough history taking and physical examination.

The term "Acute Surgical Belly" is objected to for the reason that it is not scientific, and tends to haphazard explorations, poorly conceived and ofttimes ill advised. If thirty minutes history and painstaking physical examination is made it is surprising how often a true diagnosis is arrived at. "Acute Surgical Abdomen" is suggestive of indifference to thorough examination and tends to lessen the keener sense of finding out, by constantly using every means that God gave us for such work, namely the senses of sight, touch, smell, etc. No other disease demands the attention of the problem thinker and the experienced diagnostician more than acute ileus.

No matter how skillful the technique of the operation, it will avail nothing unless the case is recognized early, and by early I mean the first few hours.

Few surgical conditions serve to illustrate the absurd inequality of the physician's fee more than acute ileus. For instance a doctor failing to recognize an acute obstruction until too late, having made several visits, receives a larger gross fee than his brother, who makes one call and saves his patient. After all, who saves the life,—the so called "country doctor" who recognizes the case early, or the surgeon who operates?

DIAGNOSIS.

To determine the condition in the obstructed suspect our plan is about as follows:

All obstruction cases suffer abdominal pain, therefore before the history is taken, the belly is given the "once over" in order at once to eliminate strangulated hernia, especially the umbilical, inguinal and femoral types. If scars of previous operations are present they should be noted as a most important link in the chain of evidence.

The heart is carefully examined. If disease is present in the endocardium the possibility of thrombosis of the mesenteric vessels or embolus is mentally carded.

The lungs receive exceptional consideration, recognizing the possibility of pneumonia with diaphragmatic pleurisy producing abdominal pain and rigidity. (The rare condition, pneumococcal-septicaemia may attack both lung and peritoneum, with peritonitis simulating obstruction.) In children the skin is examined for Henoch's purpura which is often associated with severe abdominal pain, vomiting and constipation. The eyes are observed for the Argyll-Robertson pupil, and if present other reflexes are tested, thus keeping in mind the gastric crises of syphilis.

The gums are inspected for the lead line. Thus far 20 minutes time has been consumed. If possible blood and urine tests are taken at this time.

History is next in order and should be carried out systematically. A thorough knowledge of rapid history taking is ofttimes quite as important as a thorough technique in surgical operations.

Ask date and hour of attack, and note especially the first symptom noticed by the patient, and each new symptom in order as the disease progresses. Special attention to previous history is of great importance.

Pain should be the first symptom. Note character and location of first pain, whether constant or intermittent, etc.

Vomiting: Early vomiting points to the small intestine high up, especially if fecal odor is present.

Fecal vomiting may appear quite early in high ileus, on the contrary the fecal odor may be a late manifestation in low obstruction. Many fatal delays occur, the result of "watchful waiting" for the odor of feces in the vomitus. The physician who waits for this evidence will lose his case in many instances. It is a minor symptom for early diagnosis. If present it has an important significance; if absent it means nothing.

Vomiting may appear immediately after the first pain. This is especially true in torsions or twists of the intestines accompanied by sudden intense pain and shock. The situation of the obstruction may affect the time of vomiting, the higher the lesion the more quickly the vomiting sets in. When it does appear it is, as a rule, persistent. The contents of the stomach show first, and later, mucus, bile and finally intestinal contents.

Vomiting in appendicitis is usually slight and does not persist unless accompanied by obstruction.

Vomiting in Henoch's purpura of the young is quite constant, often severe and accompanied by intense abdominal pain and constipation closely simulating obstruction. Hemorrhages in this disease, often from the intestinal tract, give rise to a suspicion of intussusception; in fact the colic and vomiting may even produce an intussusception. This should always be borne in mind. The diagnosis may sometimes be made by finding other evidences, such as haematuria, petechiae, nosebleed, joint affections, etc. A history of similar symptoms on previous occasions may help to differentiate this disease from true obstruction. However, in some instances a differential diagnosis is impossible.

Vomiting, continuous and severe, is seldom present in simple colic.

Vomiting accompanied by rise in temperature is indicative of inflammatory affection, appendicitis, pneumonia, diaphragmatic pleurisy, etc., the latter ofttimes ushered in by a chill.

In early vomiting of acute obstruction the temperature is usually subnormal.

Stools and passage of gas: The writer wishes to urge physicians not to lay too much importance on the passage of gas. He is convinced many fatal delays are due to the teaching, that the passage of gas eliminates bowel obstruction. The writer has seen a number of complete obstructions of the small intestine, where gas passed quite freely for a considerable time after the onset of the attack. This is especially true if the obstruction is high up in the small gut.

Pain produced by biliary or renal stone can hardly be mistaken for ileus. Pain of acute general peritonitis due to perforation is at first (not always however), referred to the point of perforation, the abdomen is at first retracted and contracted with a general board-like feeling throughout, soon to be followed by distention. The pulse is rapid and increases rapidly in number of beats; facial expression once seen is seldom forgotten but cannot be described. There is slight elevation of temperature, and the bowels are constipated. There is some nausea but it is seldom continuous at first.

The appearance of the material vomited is not like that of obstruction. In the former the vomitus soon appears dark coffee ground in character.

The appearance of the patient soon becomes ghastly in general peritonitis; pinched face, sallow complexion, sunken eyes surrounded by dark circles.

In fact he looks like death. (Facies Hippocratica).

In obstruction the mind is perfectly clear and often after the first shock the patient appears better, the belly is not so rigid and board-like throughout and ofttimes the patient looks good,—does not look like a very ill person. The pulse does not go up in leaps and bounds, while the temperature usually remains normal or subnormal for some time, in fact the pulse also may return to normal.

Pain in the upper belly accompanied by shock and symptoms of collapse and constipation with all the evidence of obstruction may be produced by acute pancreatitis or thrombosis of the mesenteric vessels. These conditions tax the wits of the most experienced diagnostician. The writer doubts the possibility of anything like a positive diagnosis. However, even here, an attempt should be made to solve the problem.

The more these individual cases are studied the more proficient the physician becomes in his work of saving life. Thus the "hunch" of the old timer, who works at the bedside, is frequently more dependable than the exhaustive laboratory stunts of the 1922 model.

Acute pancreatitis may have a previous history of indefinite abdominal distress above the umbilicus, perhaps pointing to gall-bladder pathology or duodenal ulcer. A sudden frightful pain with vomiting and shock coming on in an obese individual of middle age, and especially if he is an alcoholic, entitles one to a tentative diagnosis of acute pancreatitis with fat necrosis.

Thrombosis of the mesenteric vessels should always be in the cards in solving the problem in the diagnosis of acute ileus.

Even here, Loop (A. M. A.) trans. Surg. Sec. 1921) in reporting nine cases "shows a pathologic picture which is strikingly uniform and characteristic, unlike that found in any disease, etc."

Dr. Loop in his most excellent paper entitled "Mesenteric Vascular Occlusion says: "Of almost equal value in diagnosis is the absence of certain symptoms often mentioned in descriptions of this disease and ordinarily seen in the "acute abdomen," namely: (1) It is essentially an afebrile disease, the temperature rarely rising above 100° F., and often being subnormal. The pulse is infrequent but may be small, irregular and thready, according to the degree of shock. (2) There is little or no muscle spasm. The flaccidity of the abdominal muscles is a very striking feature in a patient almost crazed with abdominal pain. (3) The abdomen is not distended. Neither is it scaphoid. It may best be described as rotund but not under tension. (4) The percussion note is dull or flat—not tympanitic. This is as one would expect, having in mind the conditions within, free fluid and a relaxed bowel partly filled with fluid. Such symptoms as rigidity, tympany and singultus are those of peritonitis and are seen, if at all, only late in the course."

Dr. Loop by his boldness in his effort to show certain characteristic signs and symptoms in this disease simply emphasizes the statement made above by the writer, that constant study and observation of the so called "acute abdomen" in an attempt to find the real cause, may develop better diagnosticians and lower the mortality of acute ileus as well as all other surgical disorders.

Age has a most important bearing in the history taking. In the newborn, congenital defects such as absence of anus; atresia of bowel; microcolon, etc., are probabilities. In older children, gall stones, and acute pancreatitis may be excluded. Sarcoma is a possibility, however, a tumor formation with other symptoms nearly always tells the story long before acute obstruction appears. Carcinoma in the young must be very rare, however, Albutt and Rolleston (Vol. 3) say: "The influence of age is not so well marked in cancer of the intestine as in cancer elsewhere. The majority occur between 40 and 65 but Lonart has collected 61 between 20 and 30. Nothnagel quotes instances at 17, 13, 12, 11, 3½ and 3. Maydl states 1/6 cancer of intestine between 30 and 40." The writer has never recognized true cancer of the intestine below the duodenum under 38.

In the child the most common cause is intussusception. A baby or very young child with a history of obstinate constipation since birth, accompanied by constant abdominal disturbances and distended belly suggests the existence of Hirschsprung's disease of the colon.

Meckel's diverticulum should not be overlooked.

In still older children a history of appendicitis, previous abdominal operations, etc., may point to loops or bands. The young adult is apt to escape intussusception and carcinoma.

Here the most probable cause is a twist of bowel, bands, etc., usually following postoperative adhesions especially in drainage cases; a previous history of typhoid fever with marked abdominal symptoms, appendicitis, etc. Fecal impaction should always be considered.

In persons past 40 with a previous history of gall stones, gastric ulcer or appendicitis, the cause of the trouble may be due to bands or torsions, gall stone obstruction, carcinoma, diverticulitis, tuberculosis, acute pancreatitis, thrombosis of mesenteric vessels, etc. Acute obstructive symptoms occasionally follow pelvic inflammatory conditions in the female pelvis.

Just here I wish to report a case which may be worthy of consideration as I have never seen anything like it in print.

Mrs. G., Age 25, married, treated for six days by Dr. A. for acute appendicitis. On the sixth day she was seized with sudden excruciating pain and severe shock. Patient was removed to J. E. M. Hospital, Council Bluffs, and attended by Dr. Reichenbach who in turn called the writer.

Pulse 140, rigid, hard belly, knees drawn up, screaming with pain. Temp. 103. F. Vomiting. Diagnosis: ruptured appendix and general peritonitis. Abdomen opened. In spite of a most thorough examination of abdominal cavity no pathology was found. The only suspicious point was in the neighborhood of the tubes and broad ligaments where a slight blush made the parts appear abnormally hypereamic.

The belly was closed without drainage. Postoperative diagnosis. After a stormy convalescence patient improved, but with pain remaining in pelvis. Two months later a large pelvic abscess (tubal) was drained through the vagina. At this time, from Dr. A. the fact was brought out that Mr. B. had just "recovered" from an attack of gonorrhea when his wife was taken ill.

Dr. V. B. Knott (personal communication) has seen two similar cases, with the same follow-up history of pelvic abscess and gonorrhea. Dr. A. D. Dunn saw one operated upon by the late C. C. Allison, in which a postoperative diagnosis of ptomaine poisoning was made. The latter case was not followed up.

These cases had all the symptoms of general peritonitis with ruptured viscus and obstruction. I believe an acute pelvic gonorrheal peritonitis is a possibility which should be borne in mind in the study of differential diagnosis of the "acute abdomen."

DISTENTION.

Great distention early, is probably the result of colon obstruction and usually due to volvulus or carcinoma, with the sigmoid the principal suspect. Time and location of distention may help in localizing the site of the lesion. However, the writer, in this paper, is making a plea for early operation before distention is a factor. Marked tympanites is a late manifestation of obstruction, therefore we should attempt a diagnosis and act before this condition is met.

Borborygmus and visible peristalsis are seldom heard or seen in general peritonitis, while in early acute obstruction they are worthy of careful study. The former are often more marked over the site of obstruction. Other influences which may produce symptoms of obstruction are quite numerous and time forbids an exhaustive discussion. However several quite common conditions should be mentioned: Twisted ovarian cyst or other pedunculated tumor. Here the previous history may suggest the condition. However, this is not always the case. Therefore bimanual examination in the female and male as well, is always indicated. Tumors seemingly impossible to feel while the patient is rigid and suffering are sometimes surprisingly easy to determine even by the eye after the patient is placed under an anaesthetic. In ruptured tubal gestation, the history, appearance of patient, etc., will usually clear the diagnosis, besides complete constipation is seldom present. While the leucocytosis may be 10,000 to 15,000, the red blood count is low.

wall or abdominal viscera or the kidney: The writer has seen two cases of ruptured kidney with all the symptoms of acute obstruction with marked distention. Both were relieved by free incision over the kidney and evacuation of a large quantity of pus, blood, urine and kidney substance. Acute suppurative nephritis may be accompanied by rigid abdomen associated with fever and vomiting. Constipation may be marked but this is not the rule. While this condition may be mistaken for general peritonitis and obstruction, the temperature and urine tests should eliminate acute ileus. The writer is aware of one such case in which a mistake was narrowly avoided.

A word about blood count. If equipment or environment is such that blood counts cannot be made, action should not be delayed on this account. Blood and urine examination may help in determining a condition but the laboratory diagnosis in acute obstruction is secondary to everything else.

Acute peritonitis may show a leucocytosis of 9,000 or it may be 15,000 or 20,000. Pneumonia with pleurisy, if 30,000 to 50,000, may help in a differentiation, however, if 18,000 or 20,000 will not serve so well.

Simple colic usually shows no abnormal leucocytosis. If possible a blood count should always be made but the findings should not sway the opinion of the diagnostician.

Rectal and rectoabdominal bimanual examination should always be made. Passage of bloody mucus may mean carcinoma or intussusception. One-fourth of the latter may be found by rectal examination.

A few simple suggestions often overlooked: In acute obstruction the rectum is usually empty, however, if an enema is given some fecal matter and gas may pass. In one hour a second enema should be introduced. If obstruction exists this second enema may come away clear backed by little force; more likely the water will be retained.

Occupation may be of service in suspecting lead poisoning.

In a recent article (Am. J. Med. Sc., Dec. 1921), by Barron & Habein special mention is made of a face powder containing pure lead carbonate ground to an impalpable powder and responsible for lead poisoning. They urge that rigid laws be enacted prohibiting the sale of such compounds for cosmetic purposes.

In acute peritonitis pressure on the belly wall is met with serious objection on the part of the patient, while in simple colic the reverse is true. We all remember the green apple day, when the pressure of the wood pile or water barrel was most welcome.

The writer is convinced that fatal delays in diagnosis are not due so much to ignorance on the part of the attending physician, as to the fear of being mistaken in his suspicion that something serious has happened. In other words he lacks the courage of his convictions and is short on nerve and force. The moment the doctor sees a patient with symptoms pointing to acute obstruction, he should give his undivided attention to the case and follow out a plan of attack similar to that advocated in this paper. If the physician conscientiously believes he has to do with an acute surgical disorder, he should be bold and fearless and advise operation at once, or "pass the buck" to a surgeon who will not hesitate. Would it not be better to have a general understanding among physicians, surgeons, and the laity that operations of exploration are justifiable even when no pathology is found? By fearless action of this kind, after a painstaking history and examination the physician will seldom miss the mark. Thus the mortality of acute ileus may be reduced to 10% in the hands of the ordinary surgeon.

SOME REMARKS ON THE DIAGNOSIS OF CANCER OF THE STOMACH.*

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The American Society for the Control of Cancer placed a heavy burden on the medical profession in asking it to instruct the public on cancer. Pursuant to this request the medical profession has gone to the laity and told them of the curability of cancer when recognized early. It has spoken hopefully about a disease of which the public has grown to think despairingly. It has tried to teach the people the early symptoms of cancer and it has asked them to go at once to the physician with their lumps, ulcers, menstrual irregularities, foci of irritation and dyspepsias. The profession will make good in cancer affecting superficial and accessible regions such as the skin, lips, and breast, but the story will be different in cancer of the digestive apparatus. Early diagnosis of gastro-intestinal cancer from a clinical standpoint is late diagnosis from a therapeutic standpoint. When the diagnosis of cancer of the stomach is sure, it is usually too late to obtain a five year cure and the operative mortality of resection is high even in admittedly favorable cases—13.7% in 736 resections at the Mayo Clinic (1).

The nature of cancer of the stomach is such that in over half the cases, it gives no urgent symptoms until the disease is inoperable either from metastases or from extension of the growth. An appreciable number are inoperable from position alone. Therefore, it would seem wise to speak to the public of our difficulties and failures in cancer affecting the stomach with the same frankness with which we tell them of the hopefulness of lumps in the breast when removed early.

When a patient, especially within the cancer age, consults us for dyspepsia or distress or pain in the upper abdomen the questions immediately come up: Does cancer exist? If it does exist, what is its location and extent? and, Is it operable? I shall discuss briefly some of the principles on which satisfactory answers to these questions may be developed.

PATHOLOGICAL HINTS.

Inasmuch as the symptomatology and operability vary much with the different types of carcinoma of the stomach, it is worth while recalling the pathological behavior of the commoner forms, namely: adeno-, medullary, scirrhus, and colloid carcinoma.

The adeno or cylindrical celled carcinoma is the most benign cancer of the stomach. The pyloric region is its favorite site. It grows into the lumen of the stomach as a fungoid mass, often causing obstruction early; it metastasizes late as a rule and gives characteristic roentgenograms early. Bleeding is common and hemorrhage may be the initial symptom. The cells are cylindrical and differentiation is marked. This tumor follows the rule that the more highly developed the epithelial character of its cells, the more benign the tumor. It is the most favorable form from an operative standpoint.

The medullary carcinoma is frequently located at the pylorus, although it commonly affects any part of the stomach. It is composed of small cuboidal or polyhedral cells. It tends to infiltrate the wall of the stomach to great distances via the submucosa and metastasizes early to the regional lymph glands, to the liver and to the lungs. It does not grow into the lumen of the stomach to the same extent as the adenocarcinoma and consequently gives characteristic roentgenograms later. When located at the pylorus, it is often taken for an early carcinoma and when the abdomen is opened, very extensive involvement of the stomach wall with multiple metastases may be found. It ulcerates early and gives constant tests for occult blood.

The scirrhus is the most common form. It develops slowly and is infiltrating in type, even to the extent of occasionally invading the umbilicus; it starts most frequently in the pars pylorica, often producing stenosis early; it bleeds late, as a rule; it tends to involve the peritoneum early; producing adhesions and leads to the most marked deformities and constrictions of the stomach. The extent and time of onset of metastases vary widely in scirrhus carcinoma. Unless pyloric stenosis is produced early this cancer gives conclusive roentgenograms late, although it may modify peristalsis quite early.

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*Read before the Nemaha County Medical Society, October 27, 1921.

Colloid carcinomata are for the most part variants of the above three forms, whose cell masses undergo colloid changes in their protoplasm. Individual tumors resemble in behavior the histologic type to which they conform most. Colloid cancers tend to infiltrate, to metastasize, to involve the surrounding structures early, and are highly malignant.

SYMPTOMATOLOGY.

The text book conception of cancer of the stomach rests on signs and symptoms which occur late in the disease at a time when diagnosis is scholastic and of little use to the patient. Tumor, retention vomiting, coffee ground vomitus, and cachexia are the standbys of the text books but they belong to the too-late diagnosis. It is by correlating the indefinite beginnings of these classic symptoms with laboratory findings that early diagnosis becomes possible. From a study of case histories we may formulate three groups according to their mode of onset: first, a group with the classical onset; second, a group with onset on an ulcer basis; and third, an atypical group.

In the classical group, the beginnings come out of a clear sky, without history of prior stomach trouble, in the "stomach athlete," in the man of "castiron stomach," who suddenly experiences loss of appetite—a dislike for food in general and a disgust for special foods such as meat, or for smoking. Dyspepsia and loss of weight are the most important initial symptoms.

The cases in which cancer is engrafted on ulcer give a history of a periodic dyspepsia becoming more constant and more severe, or changing in the character of its symptoms. The incidence of this group is given as 20 to 75% by various observers and has led to the view that chronic gastric ulcer is a precancerous lesion.

Belonging to the atypical group one must expect to find many cases in which the onset is masked, the symptoms strikingly insignificant in comparison to the extent of the growth, and the diagnosis extremely difficult on account of the close resemblance to the more innocent dyspepsias, e. g., cases whose symptomatology is of ulcer rather than of cancer and cases where the symptomatology seems referable to other organs. It must be emphasized that early cancer has no symptoms that can be given much value as diagnostic points, but it must be remembered that other conditions such as gall bladder disease and ulcer have characteristic symptoms which can be used as evidence against cancer. Pain in the upper abdomen or change in the character of an old dyspeptic disturbance, the appearance of nausea and vomiting aside from acute gastro-intestinal upsets of a few days duration, or loss of weight, should indicate a complete study by physical, laboratory and X ray methods, especially if the patient is within the cancer age.

PHYSICAL EXAMINATION.

Salient physical findings belong also to the late manifestations of gastric cancers. The physical examination should be made with the abdomen fully exposed under favorable lighting conditions. Oblique light is best and the belly should be viewed from different angles in order to visualize changes in contour. Tumor is often better seen than felt. Tumor was found in 66% of Smithies' cases and 75% of Osler and Macrae's (2). No better proof is needed of the late coming of patients with gastric cancer to the physician than the above figures. The commonly mentioned "faded leaf" type of the skin has poetic rather than diagnostic value.

Physical examination has its greatest value in differential diagnosis, in helping to establish conditions other than cancer, and in providing data on which to decide operability, for a thorough physical examination helps us to a better conception of the patient as a whole than the more exact methods of the laboratory.

LABORATORY FINDINGS.

Routine examinations of gastric contents have been disparaged of late. Too much was hoped from gastric analyses and because the method failed to accomplish what was unjustly expected of it, there has been a strong tendency to throw tube methods aside and depend largely on X ray examinations. The stomach has two functions, secretory and motor, and while disturbances of motor function give the cleanest cut symptoms, yet the evidence afforded by microscopic and chemical examination of the gastric contents should not be belittled. While normal or only slightly subnormal hydrochloric acid values may be present in carcinoma of the stomach it is very exceptional and while absence of free hydrochloric acid occurs in conditions other than cancer, yet the persistent absence of HCl in the presence of symptoms suggestive of cancer demands a thorough going investigation. I remember well a case which tragically illustrates the significance of changing acid values. I had noted a rapid decrease with final disappearance of hydrochloric acid in the stomach contents of a young man suffering from pyloric stenosis. A surgeon of large experience, with the pylorus in his fingers, pronounced the obstruction benign and performed gastroenterostomy. The patient died two years later from cancer of the stomach. The absence of HCl in the stomach contents of a patient of forty to sixty years associated with mild anemia, diminishing weight and strength is portentious of cancer or pernicious anemia. **In elderly people, achylia, pain and dyspepsia most often mean carcinoma somewhere in the upper abdomen.** Changing acid values while not diagnostic of any given condition mean changed stomach function, a common cause of which is cancer. Too much has been expected of the lactic acid test and from the presence of Oppler-Boas bacilli They simply mean obstruction in an an acid stomach. Occult blood in the stool or stomach contents is of great importance if not due to tube trauma, or if not from adventitious sources. Occult blood signifies a break in the continuity of the gastric mucosa and when associated with anacidity, adventitious sources being excluded, it is persistent either in stomach contents or stool, an exploratory operation is justified even in the presence of normal roentgenological findings. When occult blood fails to disappear from the stools in a few days in ulcer cases under systematic ulcer management, the probabilities are strongly in favor of carcinomatous ulcer. The presence of pus and blood in fasting stomach contents speaks for ulceration of a cancerous process. Motor meals give early evidence of pyloric obstruction but are not to be accepted too literally and are of value only when supported by other evidence. Their function has been largely supplanted by the X ray and they have undeservedly fallen into disuse. The tube method has cheapness and availability to recommend it. Analyses of stomach contents and stools can be made by the practitioner with little more cost of time and effort than necessary for urinalyses and they will help materially to corroborate or refute suspicions of cancer. Again, it must be remembered that not more than ten percent of stomach complaints belong to the cancer and ulcer group and that valuable information is gained by laboratory examination in the other form of stomach trouble. The value of checking laboratory tests must be stressed. HCl may be wanting in the stomach contents at one examination and present at the next. The fractional test meal is of value in picking up delayed secretion of acid. Examinations at stated intervals will occasionally establish important variations in acid values. An examination of stomach contents and stools will often determine the question of whether the patient had best be sent to a roentgenologist or better, to a diagnostic clinic. On account of the tendency of syphilis of the stomach to simulate cancer routine Wassermann tests should be done.

THE ROENTGENOLOGICAL EXAMINATION.

The X ray examination probably furnishes the most conclusive evidence in regard to the existence of cancer of the stomach, yet even this method carries its illusions. The Roentgen ray deals with shadows and conclusions based on shadows alone are often as elusive and unsubstantial as the shadows themselves. "We must not let our clinical judgment be overshadowed by shadows." X ray evidence may be summarized under (1) disturbances in motor function; (2) changes in contour; (3) the location and the extent of the trouble.

DISTURBANCES IN MOTOR FUNCTION.

The emptying time of the stomach can be most accurately measured by the X ray method. Delayed emptying time points to obstruction at the pylorus and when associated with recognizable changes in contour usually means cancer. Decreased emptying time occurs in anacidity with a normal pylorus and in scirrhus cancers which infiltrate the pylorus in such a manner as to leave a stiff, patulous tube—so called pyloric insufficiency. Such stomachs fail to show peristaltic waves in the areas affected by infiltration. Failure of peristaltic waves to traverse an area of stomach wall strongly suggests cancer or ulcer.

DISTURBANCES IN CONTOUR.

Filling defects if correctly interpreted constitute the most positive of all early evidence of cancer of the stomach. Unfortunately it is exceedingly difficult—often impossible—to show filling defects from carcinomata springing from the anterior or posterior wall and when the filling defects are classic the cancer is usually far advanced, except in adenocarcinoma. Characteristic X ray findings exist for ulcer. Cancers are often engrafted on ulcer, in short are ulcers. Well worked out roentgenological findings have been established for ulcer and changes in ulcer findings suggestive of malignant degeneration are known. It would seem safe to say that any ulcer of the stomach with a crater larger than a quarter as estimated by the ray, should be excised because of the strong tendency of such ulcers to become carcinomatous.

LOCATION AND EXTENT OF THE DISEASE.

It is in determining when not to operate that the X ray furnishes us its best evidence. By it extragastric tumors can often be excluded. The stomach has been divided by Carman(3) into three zones from the standpoint of operative attack: the pyloric or operative; the middle or lesser curvature zone—the region of questionable operative attack depending on the extent of the lesion—the cardiac or non-operative zone. It is safe to say that a growth which to the X ray extends beyond the middle of the lesser curvature is inoperable.

It is obvious from our brief and somewhat scant summary of the diagnostics of cancer of the stomach that early diagnosis is extremely difficult, often impossible, and that **operative cures** will vary **inversely** as **the cube of the certainty of diagnosis.** Operative cures will be largest where the number of operations on presumptive diagnosis is greatest. The percentage of confirmed presumptive diagnoses will be largest when examinations are checked and rechecked and **where the laboratory findings are regarded not as static but are correlated and interpreted as signs of an ever developing and changing process.** The laity will have to learn that the presumptive diagnosis is their great chance for cure in cancer of the stomach. We will have to be willing to take big chances of not finding cancer at operation and the laity will have to accept our efforts in good faith. The laity will have to be taught what sort of an examination justifies a "cut in and see" advice and to rest their judgment on the character of the examination which has been made. In my experience, patients are unwilling as yet to submit to the necessary check examinations and usually refuse operation on presumptive diagnosis. They have been led to expect too much of us and too often shy the man who tells them he "does not know." The most important thing we have to get up to the public in the diagnosis of carcinoma of the stomach is not what we know but what we don't know, because it is only by a clear understanding, by the patient, of the difficulties and uncertainties of this diagnostic problem that operative mortality may be lowered and the period of freedom from recurrence lengthened.

CONCLUSION.

(1) An early diagnosis of cancer of the stomach can be made only by the balanced use of all tried methods with the intelligent cooperation of the patient.

(2) A rationalized presumptive diagnosis is best from a therapeutic standpoint in the present state of our diagnostic knowledge of cancer of the stomach.

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RADIATION TREATMENT OF UTERINE CANCER.

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The United States census report shows that approximately ninety thousand deaths in the United States each year are due to cancer. Of this large number of deaths in one year, which is more than the total amount of lives lost in the American Expeditionary Forces during the recent war, cancer of the female genital organs ranks second. The purpose of this paper is to call attention to the most frequent type of cancer of the female genital organs, namely, cancer of the uterus.

Cancer of the uterus is most commonly found at the cervix and but rarely in the body of the uterus. In fact, in cases presenting themselves to the physician for diagnosis, cancer of the cervix occurs ten times to cancer of the body once. Because of the fact that a large majority of women are not sufficiently aware of the early signs of cancer in this part of the body, most cases of cancer of the cervix come to the physician comparatively late. In fact, of all those applying for attention at the hands of the physician, the general average of operability of cancer of the cervix is less than ten percent. (7) Of course these statistics emphasize the necessity of educating the public to a knowledge of the early signs of cancer of the cervix. That question is one which we do not wish to discuss at this time. We think that most physicians are fully aware of the signs of cancer of the cervix so we will pass directly to the discussion of the results which have been obtainable by the approved surgical and radiation treatment of cancer of the uterus.

Cancer of the body of the uterus is usually surgical in character because of the growth being confined to the uterus and metastasizing late. The location makes it possible to remove the growth in toto without cutting through diseased tissue. The value of radiation treatment of cancer of the body of the uterus is abundantly proven by the response in patients unfit for surgery because of some constitutional disease other than the growth in the uterus as cited by Burnham (2).

Surgical results in treating cancer of the cervix have been very disappointing to the conscientious physician. This is due to several factors, chief amongst which is the fact that such a small percentage of patients who apply for treatment really fall in the operative class. This means that in the endeavor of the honest surgeon to do the most for his patient, many cases which are really too far advanced for operative attack are treated in this manner because the surgeon has nothing better to offer. This leads to another disappointing fact which shows that of all the cases treated by surgical methods, only 21.32 percent remain well for a period of more than five years. The immediate surgical mortality of cases of this kind is extremely high, resulting in the best hands in a mortality rate of ten to thirty percent. Even Wertheim himself confesses that his mortality rate has never been reduced below ten percent and earlier in his work was double that amount (7).

The complications following extensive surgical removal of cancer of the cervix is a thing not to be passed over lightly since in the Wertheim clinic six percent of the patients operated on developed uretero-vaginal fistula. A further condition which is very discouraging to the surgeon treating this type of cancer is the fact that 62.39 percent of the cases presenting themselves to him fall in the inoperable class. This type of case must be temporized with in some way, by cauterization or some other form of treatment without the extensive surgical removal which is usually carried out in the operable class.

If I were to go no further, you would immediately see that there is an extensive field of usefulness for radiation therapy. At first, practically the only type of cancer of the uterus which was referred to the radiologist was the inoperable type. Even with that kind of a record we feel that the results obtained by radiation treatment have been more brilliant than any obtained by any other method (4). Gradually, as more experience is obtained and more time has elapsed so we can better judge methods of applying radiation therapy, and can follow the patients' treatment and results through a sufficient number of years to give us accurate information over a large series of cases, we feel that we will be able to show results not only comparable with the surgical treatment but even superior. If we are able to do this much with the inoperable type of uterine cancer, naturally there is another class of cases which should be referred for radiation therapy.

I have in mind the socalled border line cases which are doubtfully operable or which are operated on because of the feeling that it is the only chance the patient has. This type of case when operated upon, usually has a recurrence because of the fact that the surgeon finds after getting into the midst of the operation that the growth is so extensive that it is impossible for him to remove it entirely (6). If radiation treatment is properly carried out in this type of case, the portion of the growth which cannot be removed by the knife can just as effectively be radiated as those parts accessible to surgical treatment. It is merely a matter of getting a sufficient dosage into the parts and employing a technique which will cover all possible metastases. Due to the powerful influence of radium on cancer cells and due to the fact that we can readily introduce radium into the vaginal vault or even into the uterus itself, it gives us an opportunity to radiate the entire pelvic viscera and all lymphatics contained therein. I do not mean by this that we should rely on radium alone, but should combine with the radium used in the uterus or vagina, heavy X radiation applied through the abdomen, back and two sides of the body. By combining these two methods we will get a lethal cancer dose of radiation into all of the tissues of the pelvis, providing our technique has been properly and thoroughly carried out. We feel that in this method lies the greatest possible hope for the future treatment of cancer of the uterus.

It is not my purpose to advise a monotherapy method of treating malignancy because any conscientious man who is handling large numbers of these cases realizes that if he uses every means at his command he will have a percentage of failures which is really discouraging. By combining radiation from without the body and radiation from within, and surgical treatment where indicated, we feel that we can offer the patient the greatest amount of help.

There are certain other advantages to the radiation treatment so far as the patient is concerned. First amongst these is the fact that there is no immediate operative mortality; second, that there is seldom need of an anesthetic; third, that the hospital stay is relatively short, and fourth, that, if need be, the treatment can be reapplied. Radiation treatment of cancer, however, is like surgical treatment—the results are much better when the entire mass can be eradicated at the first treatment. So that when it is at all possible, we feel that the lethal dose should be applied at the first sitting rather than to depend on having the patient return for further treatment. The fifth advantage is the fact that by radiation we can successfully reach all of the possible lymphatic metastases, going a good deal farther out from the growth than is possible by surgical treatment (6).

We feel that it is well to mention the method of application of radium to the cervix in the treatment of cancer. Experience has shown that we should introduce the radium into the cervical canal when this is possible without traumatizing; that radium should be placed against the cervix in the vaginal vault and some radiation should be allowed to impinge upon the walls of the vaginal vault, but we should keep the walls away from the radium far enough so that they do not get too much reaction, which would result in producing vesicovaginal or rectovaginal fistula, or even enough irritation to produce occlusion of the vaginal lumen in the healing process (5). This distance can be accomplished by applying the radium mounted on dental modeling compound, to the cervical mass or by packing gauze in the vagina in such a manner as to keep the walls away from the radium applicator, or we can adopt a metal shield for protection of these parts as is done by Donaldson and Knappenberger of Kansas City. Others have adopted a lead slug with the radium mounted on one side of it.

Following the treatment, the patient should be instructed to take a douche daily. Radium therapy should be supplemented by X radiation over the abdomen, back and on both sides, according to the most approved technique, with a high voltage current, heavy filtration and not less than a twenty-inch anode skin distance.

Case No. 8445—Mrs. A. F. S., 47 married. Inoperable Carcinoma of cervix. About three months previous to the time she presented herself for examination, she noticed she was getting weak and nervous but says that her menstrual periods had been regular. Three months ago she began to have irregular bleeding from the vaginal canal which gradually increased until it was constant with a foul smelling discharge. This has continued up to date. April 10, 1918, the referring surgeon curetted and cauterized the cervix and at that time the whole pelvis was hard and board like and the uterus immovable. On June 11, 1918, she presented herself to us at which time we confirmed the findings as reported by the surgeon, the bleeding and foul discharge having returned. She was given intensive X radiation over the abdomen and the back, including the whole pelvic region and lymphatics. Within thirty days the bleeding and vaginal discharge had entirely ceased and the patient began to slowly gain strength. The last series of X ray treatments were administered in November, 1918, at which time she was discharged because of the fact, that the uterus had become freely movable and there was no longer any induration palpable in the pelvis. The patient remained well until February 27, 1921, when she returned for observation and we found evidence of a small recurrence in the anterior vaginal wall along the urethra, just posterior to the meatus. This was treated with radium and has apparently disappeared. The patient is still in good health, has gained weight and strength and is able to continue her household duties.

Case No. 13061—Mrs. R. W. B., 72, married. Carcinoma of Cervix Complicated by Nephritis. This patient had been treated by me for an epithelioma on the nose early in the year 1920. She fully recovered from this. In June, 1921, she was referred back to me by the family physician because of cancer of the cervix which he had found in recent examination. This was treated by application of radium directly to the cervix, 3600 mg. hours dosage one and one-half millimeter of brass as filter. This treatment was supplemented by intense X radiation over the entire pelvic region in front and back. At a recent examination there was no evidence of the growth in the cervix and the wound caused by the application of the radium had healed.

Case No. 14380—Mrs. M. S., 35, married. Carcinoma of Vaginal Vault following Panhysterectomy for Cancer of the Cervix. In August of 1920 the patient had a panhysterectomy for cancer of the cervix which was proven by microscopical examination. She was referred to me on September 11, 1920, because of a cauliflower mass in the site of the scar in the vaginal vault. This was friable, bled easily and clinically was a recurrent carcinoma. She was treated by application of radium in the vaginal vault directly against the tumor mass, the dosage being 550 mg. hours in direct contact with the growth, using one-half millimeter of brass as filter. At recent examination the growth entirely disappeared and the wound had healed so that the surface appeared normal.

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SYPHILIS,*

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The great advances in the knowledge of syphilis, made during the last twenty years, have proven that the disease is more widely spread than ever suspected, and that it is responsible for many obscure pathological conditions, which formerly were not recognized. The importance of syphilis is also of great moment from a social economic point of view, when the expense of indefinite periods of treatment and the great waste of labor are considered. The ravages of the disease extend to second and possibly third generations, lowering the physical standard of future races and greatly interfering with their prosperity and comfort. For these and other reasons the teaching of syphilis has risen from a subordinate place to one of utmost importance and must be given its proper place. Instead of giving it casual attention only in the various departments of medicine, as it appears among other pathological conditions, it should be taught as a unit in all its aspects and ramifications to give the student a complete general view and full understanding of it. As it cannot be expected that the syphilologist should also be an expert in neurology, internal medicine, pathology and other branches, the management of such complications, whenever involved, ought to be given over to competent men. Letting a patient with various manifestations, pass through different hands without cooperation, most frequently proves a failure. The pathologist who makes the Wassermann tests, the dermatologist who sees the skin eruptions, the ophthalmologist who is called to treat the eye lesions, the neurologist who takes care of the involvement of the nervous system, none by himself, if not familiar with all the other phases, can see the patient through to a final cure. One person, depending on the cooperation of others, must have general supervision of a patient throughout the whole course of the disease to manage it successfully.

It is estimated that more than five per cent of the population of the United States, about five million people, are or have been affected with this disease. A great handicap in relieving this condition is the disrepute attached to the disease, making the patient reluctant to admit his trouble and to seek help at the proper place. Secretiveness is to blame for many people remaining untreated or falling into the hands of quacks, being seriously menaced themselves and forming a constant danger to the public. Syphilis is still considered a venereal disease, a view which, taking into consideration that many infections are accidental or transmitted from parents to children, should not be continued. The public should become acquainted with all facts, in order to know the real character of syphilis and guard against it. Some hospitals refuse admission to syphilitic patients. Knowing how much unsuspected syphilis is brought into the hospital, all the time, it seems ridiculous to close the doors when the diagnosis is known and a few precautions only rendered necessary. Health insurance and sick benefit associations still make a distinction against syphilis. Only a better understanding of the disease and with it a more tolerant attitude will brush away unjustified prejudices, open the way to it rational care and prevent its dissemination. Laws calling for reports to the health department, quarantining the individual and enforcing hospital treatment are being tried with questionable success. Reporting cases by number may be of benefit for statistical purposes and to bring before the eyes of the public the prevalence of the disease. It may attract the attention of the health authorities to some localities where an increased number of infections need special attention. If the patient refuses to continue treatment until he is cured, his name is supposed to be given to enable legal steps to force him to do so. This, however, may easily lead to personal distinction between individuals and at times to blackmail. Unless there is a flagrant neglect of personal responsibility toward the community, few physicians will feel justified in taking such an advantage of their professional relations to their patients. Considering the forcible isolation and treatment of recalcitrants, the best that can be said for it is, that it can be carried out only for a limited time, preventing the patient from scattering the disease in his most contagious stage, but altogether too short to make any benefit permanent. All these measures, however, may have a place as a step in the right direction until new and better means are developed.

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The only practical and rational way to teach proper prophylaxis is a national campaign for the education of the public. When the people realize that syphilis can be acquired at any place and at any time without warning, plunging them into humiliation, distress, and serious sickness, they will quickly rally around the medical profession to fight the plague.

In this age of specialization in medicine, carried to almost humorous limits, syphilis holds legimately a field of its own, as much or more than other branches of medicine. The time of routine work has passed. Research work in syphilis has developed to such an extent in recent years, that it floods the present day medical literature and easily takes all the time of a single individual to become thoroughly familiar with it. Not only constant study, but long practical experience and personal equation are necessary to become an expert in syphilology. To overlook the presence of syphilis is equal to a possible condemnation to almost every known pathological condition in future life, while to mistakenly pronounce a positive diagnosis means fear, humiliation and expense for an indefinite time. The borderline is sometimes so narrow that only a thorough knowledge can satisfy an honest conscience.

Syphilis probably existed in prehistoric times. Exhumed bones of this period show lesions which appear characteristic. Some diseases mentioned in the Bible remind one forcibly of syphilis. Up to the middle ages syphilis doubtless existed in various countries and among different nations, but very little was known about it until the latter part of the fifteenth century. After the discovery of the new world and the return of Christopher Columbus and his followers, the disease became known for the first time in Europe, spreading rapidly over large areas. Epidemics in which thousands died, devastated the country, due to the fact that syphilis is most virulent whenever attacking new places. After syphilis has been established for sometime it assumes a milder character becoming more attenuated.

A great many ideas, based on theories which were formerly taught as indisputable axioms, have become obsolete through our modern and more scientific knowledge. Immunity against syphilis does not exist. Many cases, which were considered immune, were in reality inoculated with the virus, proven so by a positive Wassermann reaction. One attack does not confer immunity against another. The non-contagiousness of late lesions, preached for a long time, is repudiated by the fact that they harbor the microorganisms. The so-called parasyphilitic diseases, as tabes, paresis and others, which were put in a class by themselves and were considered occasional sequels to syphilis, are now recognized as specific manifestations of the spirochetes and their toxins. An intermittent treatment with mercury, as a rule in insufficient doses, continued over a period of years, and an absence of external symptoms for another period, were a criterion of a cure. This fallacy becomes obvious more and more now as we become better enabled to recognize the specific nature of old obscure internal conditions.

Due to the fact that the germs remain limited to the place of their entrance for a short period, it is essential to make an early diagnosis followed by an intensive treatment to curtail their development and dissemination. This necessitates the knowledge and the use of all modern diagnostic methods. The dark field illumination and the complement fixation test, though failing at times, will in a great percentage reveal early the nature of a suspected lesion. The clinical appearance of the sclerosis which formerly formed the only basis for a diagnosis, is still important and should not take a secondary place to laboratory findings.

The curability of syphilis is an open question. The difficulty of settling this point depends on the fact that no accurate means are available to prove a cure. Judging, however, from clinical evidences and from careful observations over long periods, it may be assumed that the great majority of syphilitics recover and remain well under favorable conditions if adhering strictly to all instructions.

The efficiency of the treatment of syphilis has been greatly enhanced by the results of biochemical researches and discoveries. The problem whether our therapeutics destroy the microorganisms or only make the soil unsuitable for them, is not solved. To form a judgment of the correct dose and method in each individual, pushing it to the limit where it will have the highest therapeutic effect without injuring the host, is an important issue. So far all attempts at immunization have been failures, no matter whether the virus was previously destroyed by heat, by chemical agencies or by attenuation. A prophylactic and curative specific antitoxin is still a problem for the future.

It is advisable to sound a warning in the carrying out of the treatment in syphilis. Too much familiarity breeds contempt. Mercury is a kidney irritant. If pushed too strongly or in case of idiosyncrasy, it may lead to nephritis. The kidneys perform the important task of eliminating drugs and toxins. If handicapped they interfere with necessary medication and with the recuperation of the individual. Mercury should never be administered without constant watching of the kidneys. Intravenous injections of the arsenical compounds are not trifling procedures, devoid of possible harm. Many fatalities or serious injuries have followed them, due to incorrect technic, anaphylaxis or idiosyncrasy. Unless a physician had the opportunity to acquire sufficient skill and experience, has competent assistance and the necessary equipment, he will do well, for his own and the patient's sake, not to attempt intravenous medication. Even with all conditions apparently favorable, unexpected and even alarming complications may appear sooner or later, either due to a stirring up of the toxins, with exaggeration of symptoms, or due to the toxicity of the drug.

Every patient should be taken care of not only with the view of curing his disease by all known means, but by looking after his mental and physical well being as well. He should be considered as an individual problem, different from others. Leading him to a successful termination of his disease, will not only result in his satisfaction and gratitude, but also in a far reaching benefit to the community.

THE OPHTHALMOLOGIST'S RELATION TO SYPHILIS.*

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There is no class of cases which stands more in need of group diagnosis, group treatment and, as we have it here tonight, group discussion, than syphilitics. Every case of syphilis, whether seen by a general practitioner or by a specialist, must be considered from two angles. The general practitioner, after making a diagnosis of syphilis, must treat the general condition including the particular local manifestation for which his patient comes to him. It should also be his duty to watch for involvement of special organs which do not fall in his domain, and see that they receive early such special care as they demand. This is especially true of involvement of the very special organ of vision, which, according to Groenouw, occurs in 3.2% of all syphilitics. At the Mayo clinic, every syphilitic, whether or not suffering from ocular symptoms, has his eyes, and especially his fundus examined, and I believe the incidence of ocular involvement in their cases would be found much higher than 3.2%. One series has shown it as high as 16.5%. It is not enough for a patient with luetic iritis to receive general antiluetic treatment. It must be recognized early that he has iritis, so that atropine can be given before his pupil becomes hopelessly bound down by adhesions.

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*Read at a Meeting of the Omaha Clinical Club, Jan. 11, 1922.

The specialist, on the other hand, has his obligations. The oculist, for example, must first treat the eye and its causal affection, but he must not allow a patient to stop treatment when his ocular condition has cleared up. He must ask: "Where else has this patient syphilis?" and by cooperation with the general practitioner, do his best to see that treatment is continued until the disease is cured. Since Fordyce has apparently proved that most cases of neurosyphilis show nervous involvement early in the disease, as revealed by spinal puncture before any nervous symptoms have occurred, it becomes the duty of the specialist to obtain a spinal fluid for examination from every case where it is possible before the case is discharged.

Fordyce and Rosen believe as the result of such routine examinations, that 25 to 30% of luetics during the secondary stage have already some nervous involvement. Kingery found that 28.8% of a series of 58 hereditary syphilitics showed positive spinal fluid Wassermann reactions. Such findings show that most of us have been neglecting something of very vital importance to the future welfare of our patients, and that probably a number of sad late results may justly be laid at our doors. The importance of syphilis to the oculist is shown by the fact that 2% of all eye diseases are caused by syphilis. Widmark found that 14 to 15% of the blind covered in his report were so from syphilis.

Its manifestations in the eye are legion, varying from the initial lesion on the lids, keratitis, scleritis, iridocyclitis and choroiditis to the ocular palsies and optic atrophy. Kubnik has recently even described a form of rather severe conjunctivitis in the newborn, with spirochaetes in the secretion. I will try only to emphasize a few of those forms in which the relation between the oculist and his confreres becomes most important.

The cases in which the oculist may most often give valuable information to the internist are probably those of interstitial keratitis. I can remember a quite considerable number of children, usually poorly developed mentally and physically, in whom the appearance of interstitial keratitis was necessary to the diagnosis of hereditary syphilis and the introduction of the antisyphilitic treatment for which the whole physique had been crying out in vain. A boy seen at the State Hospital had been deaf for years, with nothing found to account for his deafness till his keratitis appeared. It must be remembered that though usually appearing in childhood, the late forms are not very uncommon, occurring in young adults who have shown no frank signs of hereditary lues; often in fact, no symptoms which would have sent them to a doctor. These cases are fairly often over twenty years old, and Igersheimer collected 34 cases in persons 30 to 40 years of age. Though giving no other symptoms, careful examination usually reveals the familiar stigmata. Hutchinson's triad, notched incisors, deafness and interstitial keratitis, is well known. There are other dental defects, however, almost equally characteristic. Some of these are the tuberculated canine, in which a little nodule is present near the cusp, the sloped Darier molar, in which both sides slope towards a small biting surface, which often has four small accessory cusps in the middle, and pegged incisors, sloping from a broad base to a small cutting apex. Incisors which appear normal by ordinary light may show, when a light is placed behind them, an area of thin, transparent enamel which would be a notch if the tooth were slightly worn. The teeth are often irregularly spaced and the jaws so malformed that upper and lower teeth cannot be brought together. Among other signs perhaps not so well known is the increase of the "carrying angle" of the elbow, upon which Fournier places much value. The Wassermann reaction, of course is usually 4 plus.

While not all cases of deep or interstitial keratitis are due to syphilis, the ordinary type is nearly always so. 2-3% occurring in acquired and the rest in hereditary syphilis.

Consequently in any inflammation of the deeper layers of the cornea, syphilis must always be ruled out. A common cause of confusion is the fact that interstitial keratitis may develop after any injury to the cornea, or after an ordinary conjunctivitis, the whole trouble being always ascribed by the parents and sometimes even by the oculist, to the trauma or acute infection.

If the appearance of active interstitial keratitis is of value in leading to a diagnosis of lues, the signs left in old healed cases are of hardly less value. Any very fine diffuse corneal opacities may point to an old interstitial keratitis, but the fine vessels seen under high magnification by the ophthalmoscope are almost pathognomonic, and even if they cause no disturbance in vision, a Wassermann test should always be advised where they are found.

In line with this, there are certain fundus changes of which much the same may be said. Fundus examination in an ordinary refraction case will sometimes reveal old patches of pigment displacement at the periphery which, while not interfering at all with good central vision, tell us almost certainly of the previous existence of choroiditis, the result of congenital syphilis. This may be active elsewhere in the body, and it is our duty to find out whether or not it is active.

While in iritis and choroiditis, we are now keen on the scent of focal infections, just as large a proportion of cases as ever are still due to syphilis. There are many cases of iritis with minute nodules to be seen in the iris, and of choroiditis in which the vitreous is full of dustlike opacities, in which an immediate Wassermann test will give us more valuable information than X rays of teeth or sinuses, which may, unfortunately for our peace of mind, also show pathology.

These cases of uveitis usually occur as secondary manifestations of syphilis, and their active manifestations clear up promptly under treatment, leaving little or no permanent damage according as they were discovered early or late. It is hence especially important to impress such patients with the severity of their general condition and turn them over to someone who will not stop treatment till they are cured. We all see patients who have been given one or two expensive courses of salvarsan and left with nothing to do afterwards or between courses. While admitting the value of salvarsan, and regularly advising its use, I believe the cheap and efficient mercury inunction will always hold a large place in our therapy, and that it should be used between injections and for a long while after they are over.

The importance of ocular palsies for the diagnosis of syphilis is well known. We are told that any paralysis of an ocular muscle in a patient under 45 is most likely to be due to syphilis. In spite of the confusion recently thrown into the field by the prevalence of lethargic encephalitis, this still holds good in the main. I saw one of these perplexing cases with Dr. Rubnitz this year, a man who had developed a paresis of one external rectus in whom a plus-minus Wassermann report was returned, and who denied a specific infection. He refused lumbar puncture, but we decided that he had probably had an abortive case of encephalitis. When last seen, he was improving slowly under antisyphilitic treatment, as he would probably have done without it. In old ocular palsies, syphilitic treatment usually does no good, and there are a certain number in which the lesion is from the start irreparable. A large number, however, in which a diagnosis of syphilis is made at once, respond well to treatment. In a colored man who came in recently with complete third nerve paralysis, including ptosis of the right eye, the condition is clearing up steadily under salvarsan and mercury.

It is important to remember in these cases that an ocular palsy may be either a vascular luetic lesion or a lesion of pure neurosyphilis. If the blood Wassermann reaction is negative or doubtful, a lumbar puncture should always be done. A woman of 40, seen last year had had no symptoms but a sixth nerve paresis. Her blood Wassermann reaction was negative. Her spinal fluid, however, was strongly positive and the Lange test was reported as giving a strongly paretic curve. She had shown no signs of paresis, but before my brief experience as her oculist was ended, I decided there was certainly something the matter with her head. The diagnosis in her case probably did us no good, but I had the satisfaction of having given her husband a prognosis and having referred him to a neurologist.

Along with the ocular palsies must be mentioned pupillary changes. While it is well known that a typical Argyll-Robertson pupil usually spells syphilis, less attention is paid to slight changes which are of almost equal importance. In France and Germany, a good deal of work has been done recently on the exact recording of these minor changes. O. Barkan for instance, by means of the pupillometer found slight inequalities between the pupils or abnormalities in light reaction, in a very large proportion of all luetics, and in his hands these have constituted one of the most valuable signs in the diagnosis of syphilis, and especially of neurosphilis.

In optic atrophy, the relations are usually the reverse of the previous conditions. While an oculist may make the first diagnosis of syphilis in an early case, these cases are, unfortunately, rare. The process is so slow and so insidious in its onset that he usually sees old cases, in which other signs have led to a diagnosis. The patients have often had more or less antisyphilitic treatment, and yet the slight dimness of vision has progressed until the fields are small, there are central scotomata, and the prognosis is very bad. We were taught that the prognosis is bad in all cases, so that it was considered of little value to make an early diagnosis. Recent work, however, has thrown a few rays of hope into this dark prognosis. Intraspinal treatment has been credited with some long remissions and even permanent checking of the process. Suker and Schoenberg have for some years been using injections of mercury bichloride into the lateral ventricles, with some surprising results. Suker believes that most cases can be checked if treatment is begun while there is still useful vision. One of our cases, which we sent to Dr. Suker, showed a very definite increase in vision, regaining 20/20 in both eyes, with return of color vision. This was a man who had been receiving general antiluetic treatment for 20 years, and who was thought to be cured by his physician because his blood Wassermann reaction was negative. His spinal fluid was strongly positive, and his case is a striking example of the need of lumbar puncture before pronouncing any case cured. The only case of our own which we have been able to follow through, treated in connection with Dr. Keegan, has definitely held his own for a year now, with slight improvement in central vision and fields.

Consequently with what at least gives a reasonable hope to offer in these cases, there cannot be too much insistence on the clinician's duty to watch his luetic cases for disturbances of vision, that early diagnosis of neurosyphilis and of optic atrophy may be made and the patient given every chance to avoid becoming a blind public charge. While central vision is still good, before the nerves are pale, a diagnosis may be made by careful visual fields, and it is only with increase in the number of these early diagnoses that we can fairly test the efficacy of the methods. When the nerves are white, with only the small fragment of a field remaining, there is little we can give the patient but a prognosis.

REPORT OF A CASE OF BOTULISM FROM EATING COMMERCIALLY CANNED PORK AND BEANS.*

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The occurrence of suspected food poisoning is common in the experience of every physician but absolute determination of the foods responsible or of the conditions under which it occurs is frequently given no thought. It is to bring this subject to your attention that this paper is presented. The information which textbooks offer is in most instances ten years behind the present knowledge of the subject. Among the laity, even in well informed households, little is known of the cause or prevention of such poisoning. That bacterial action is responsible for the presence of poison in foods ordinarily fit for use has been known for nearly thirty years. The term "ptomaine" was introduced by Selmi and applied to the alkaloidal substance produced by putrefaction and has become the popular synonym for food poisoning.

Two organisms are ordinarily responsible for the formation of toxins in foods without presence of the usual evidence of putrefaction, although these may be accompanied by putrefactive organisms. B. enteritidis belongs to the colon-typhoid group and will not be discussed. B. botulinus described by Van Ermengen in 1896 was isolated from a ham, the eating of which caused an outbreak of food poisoning. Cases of botulism have since been reported from eating almost every kind of food—meats, vegetables and fruits. The organism belongs to the spore forming anaerobes, is gram positive, and frequently, but no always, associated with putrefactive organisms. Though I have been able to find a record of no case reported in Great Britain, a considerable number have been reported on the continent, particularly in Germany. In the United States the condition has been spoken of as rare, but the following summary does not tend to confirm this opinion. Jennings, Haass and Jennings (1) in 1919, were able to collect from the U. S. Literature records, of outbreaks, in which ninety-seven persons died. Randall (2) in 1920 reported five deaths from canned beets. The greater number of these came from eating home canned foods.

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*Read before the First Annual Meeting of Seventh Councilor District Medical Society, at Geneva, Neb., Oct. 20, 1921

Report of Case: R. E. Male, age 3½ years.

Previous History: Well, active child apparently normal in every respect.

Family History: Father and mother, living and well. Brother, aged eight, living and well. Sister, aged five, living and well.

Present Complaint: Became ill about 2:30 P. M. October 27, 1920, suffered a slight chill, but complained of no pain. Later in the afternoon he vomited twice and had two watery stools. He was first seen at 7:30 P. M., pulse 96, temperature 101°, respiration normal.

The general examination was negative except for an irregular nystagmus, slight twitching of muscles and the look of prostration. Patient was seen again at 5:30 the next morning, pulse 140, temperature 102, respiration slow and shallow, slight cyanosis present. He lay very quiet, apparently conscious, although no attempt was made to follow movements of family by the eyes. The pupils did not react, no attempt was made to raise the head, no neck rigidity was present. Examination of chest, abdomen, and extremities was negative. 8:30 he was seen again, with no particular change excepting the more marked cyanosis and prostration.

Death at 2:00 P. M., 24 hours after onset of symptoms, with very marked cyanosis.

During the morning the father and sister became ill, both vomited during day and became very weak. The mother complained of feeling weak, but I attributed this to the trying twenty-four hours through which she had passed. It then occurred to me there might be some common cause for the illness. Questions revealed the fact that canned pork and beans, which they stated were in good condition, had formed a large part of the meals during the two preceding days. The food had not been cooked, but merely warmed. A relative staying with the family had a tonsillectomy done a few days before, and was unable to eat of the beans. The brother of the dead child did not care for them. Neither were ill.

Three cans of beans still in the larder, and three empty cans, were secured. Anaerobic cultures for spore formers were made and incubated at room temperature for six days; cultures from two of the unopened cans and two of the opened cans showed organisms with cultural and morphological characteristics of B. botulinus. In the cultures from the opened cans other spore formers were present.

This was later confirmed by Prof. J. T. Meyers of the Department of Pathology of the University of Nebraska College of Medicine by further examination and animal inoculation at a later date.

In looking over the history of this case several points stand out.

1. The marked symptoms were, the vomiting, the prostration, the eye symptoms, and shallow breathing with cyanosis, which may perhaps be explained by assuming that the bulbar centers were first stimulated and then depressed with final paralysis of the respiratory center.
2. The beans eaten were apparently in a state of good preservation, as were also those which I, myself opened to culture.
3. The food had not been cooked, but merely warmed.
4. Only those who had eaten of the beans were ill.

The toxins produced by B. botulinus act directly on the nervous system, more particularly by bulbar paralysis. The discoverer of the organism stated that the spores were destroyed by heating to 80° C. (176° F) for one hour, but more recent investigation has shown that, though this may be true of some strains, other strains are much more resistant. Burke (3) has shown that some strains withstand boiling for three hours as in the cold pack method of canning, or autoclaving at fifteen pounds for ten minutes. In this instance the spores must have been fairly resistant since all putrefactive organisms had been killed. The occurrence of botulism in commercially canned foods is rare. Dickson, Burke and Ward (4) were in 1919 able to find a record of only two cases and reported a third. In this particular case the cans must have been run through without sufficient pressure or time, or else the spores were more than ordinarily resistant.

So far as I have been able to learn no cases of poisoning have occurred when foods had been raised to the boiling point before eating, since this temperature destroys the toxin. It has been generally accepted that direct infection is impossible, but more recently, (5) some doubt has been thrown on this point.

Although the condition has generally been supposed to be rare, more careful observation will probably bring attention to more outbreaks. The treatment of these cases, has, so far as reported not been encouraging. The antitoxic serum (6), when given before the appearance of symptoms, has experimentally shown good results, but given after the symptoms appear, does not change their course. The same has been true in cases of botulism in which the serum (1) (2) was used.

The prevention of these cases can only be accomplished by education of the housewives to these facts.

All suspected foods should be discarded, not tasted or recooked.

All canned foods should be thoroughly heated before eating.

Greater care should be exercised in canning.

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BLASTOMYCOSIS.

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To Gilchrist belongs the honor, in 1894, of recording the first case of this rather rare disease. Up to 1915 one hundred cases had been reported. Since that time many more have been published, and no doubt there are still others which have not found their way into the literature. Bevan, in later years, has probably done more work on blastomycosis than any other investigator. His chapter on the subject in the Lexer-Bevan surgery is as complete as any article I have been able to find. The disease is caused by blastomycetes. These organisms are yeast fungi, and are found in the minute abscesses and nodules that are characteristic of the disease. The source of infection is not always apparent. Trauma may be a factor. In the case we are reporting it evidently followed an injury. Clinically these cases fall into two groups, the cutaneous, in which the lesions are confined to the skin, and the systemic, in which the internal organs, most often the lungs, are involved. It must be remembered, however, that the cutaneous form may invade the internal organs, and on the other hand, the systemic cases may show secondary cutaneous manifestations. Bevan describes the cutaneous lesion as "a patch with a gradually sloping border. The patch is elevated and ulcerated, or covered with a crust. Along the border are seen minute abscesses, which are typical of the disease. Parts of the patch may present scars where healing has taken place." The essential lesion, in the systemic cases, is the presence of blastomycotic nodules, which contain areas of necrosis with blastomycetes, leucocytes and giant cells. Any of the organs of the body may be involved, abscesses or ulcers forming in the tissues affected. The cutaneous cases are very chronic, but respond well to potassium iodide in large doses. The systemic cases are 90% fatal, the patient usually dying with the clinical picture of tuberculosis. Moore (1) reports a most interesting case in which the disease began in the mouth, followed by pain and swelling of the side of the face. In spite of treatment, the disease progressed, the patient finally dying after a series of convulsions. Autopsy showed the brain to be the seat of numerous abscesses, and blastomycetes were recovered, though in small numbers, from the brain tissue. The case we wish to report gave a history as follows:

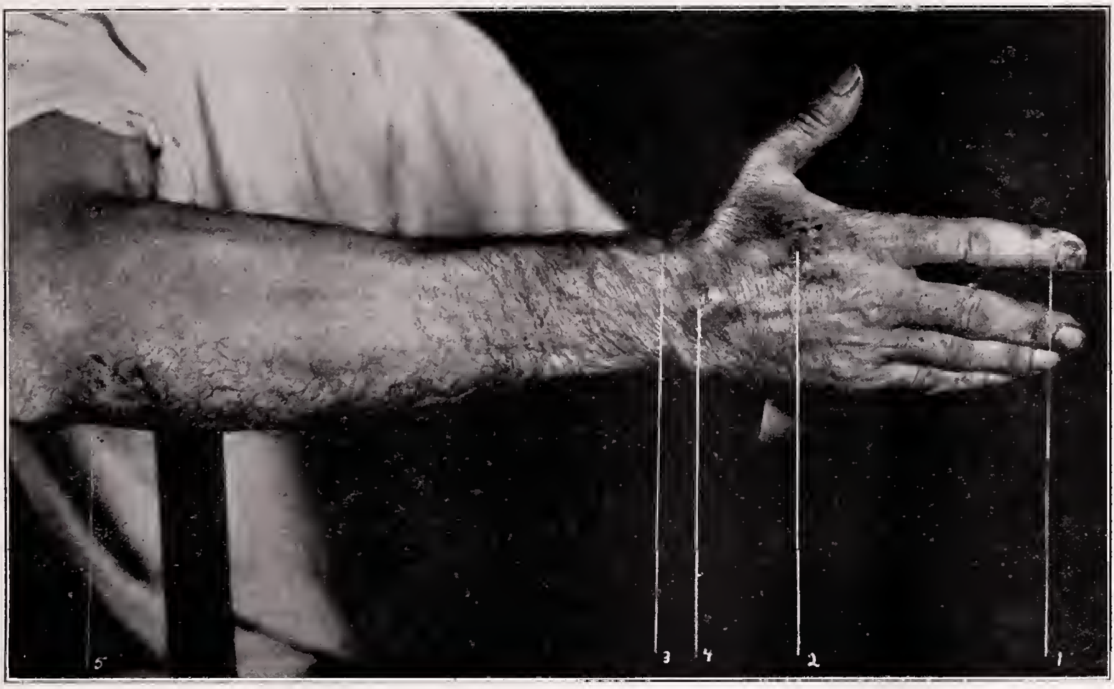
C. P., Male, age 41, called at my office July 9, 1921, on account of an injury to the right index finger.

Family History: Father died at about seventy years, cause unknown. Mother died of pulmonary tuberculosis. Three brothers and one sister died in infancy, cause unknown.

Previous Diseases: Influenza three years ago. Did not have pneumonia at that time. Operated on for varicocele ten years ago. Otherwise always healthy.

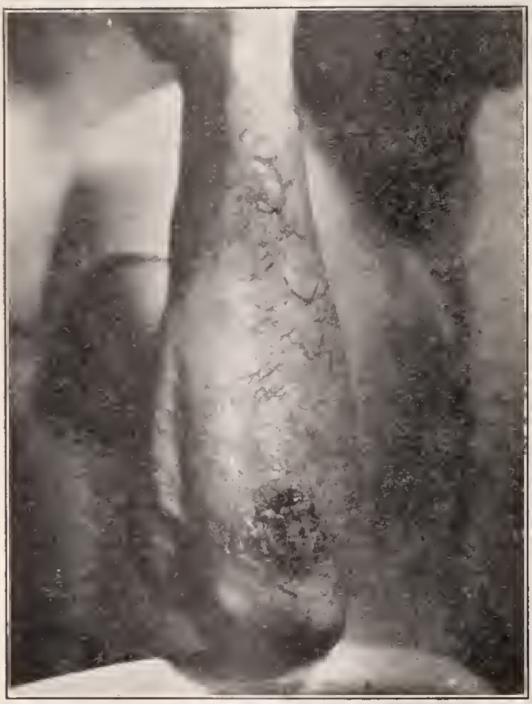
Personal History: Patient is man of medium build, five feet eight inches tall, weight one hundred and forty pounds. Color good. Smokes, but not to excess. Has never used alcohol to excess.

Present Illness: Patient states that about the middle of June, while sorting soiled clothes in the laundry, he caught his index finger between two barrels, bruising the finger and tearing off part of the nail. Did not see a doctor, nor did he quit work. Patient also states he did not bandage the finger, but continued handling the soiled clothes, which were collected from the different hospitals in town. The finger gave him very little trouble until about four to five weeks later, when it began to swell and pain. At this time, July 9th, he consulted me, a period of about four weeks after the injury. An examination at this time, showed the last phalanx of the index finger swollen and inflamed. The nail was deformed by the previous injury. On the dorsum of the hand, close to the base of the index finger was a swelling about the size of a dime. This was red, not tender or painful and of fairly firm consistency. incised the finger along the inner side of the nail and evacuated a small amount of pus. Nothing was done with the swelling on the dorsum of the hand. The following day, the patient felt better, the pain was relieved and he has had practically no pain since that time. During the next few days the finger continued to drain and the swelling on the hand became a little larger and of a deep, red color. It was not painful and only slightly tender. It gave a sense of fluctuation and appeared much like a sebaceous cyst which had become infected. On the fifth day from the patient's first call. I incised the swelling. A very small amount of thin serum exuded. There was no pus. On this same day, I noticed a third swelling over the dorsum of the wrist. This swelling was about the size of a pea, was firm and papular in character. A few days following the opening of the swelling, it began to discharge pus, and a yellowish crust formed over the lesion. In the meantime the swelling on the wrist gradually enlarged, while a fourth one made its appearance about one inch to the ulnar side of the wrist. Both these lesions developed gradually as the first had. I incised one of these, the other opened itself about ten days from the date of its first appearance. These went through the same course as the first one. The minute abscesses along the border of the lesion, that are said to be so characteristic of blastomycosis, were not in evidence, at least to the naked eye. However, the base of the ulcer would, on removing the crusts, be found to be bathed in a seropus. About this time, four weeks from the time of the patient's first call, I left the city and did not see him for three weeks. On my return, there seemed to be very little change. I had a Wassermann test done, which was reported negative. At this time, the patient called my attention to a lesion on the elbow. He stated that it had been there four weeks, but that he had concealed it fearing that I would open it. This lesion appeared a little different from the others, in as far as it was much larger, about the size of a dollar. It was covered by a yellowish crust, and along the edges, minute abscesses could be seen with the naked eye. Pus exuded from the edges, and on removing the crust, the base was found bathed in pus. Cultures showed the presence



1. Taken three days after treatment was instituted, showing the five lesions.

of blastomycetes. The day following the taking of the culture, patient complained of pain in the chest. This was described as a sharp pain in the upper right chest, and patient said it was severe during the night, keeping him awake. The following day, however, he experienced no further trouble. An X ray taken at this time showed evidence of an old, healed pulmonary tuberculosis. Patient was admitted to hospital September 16, 1921. At this time blastomycetes were recovered from all the lesions. No organisms were found in the blood. Blood examination showed 4,300,000 reds, 6,600 whites, Hemoglobin 80%. Differential count, 8 large lympho-

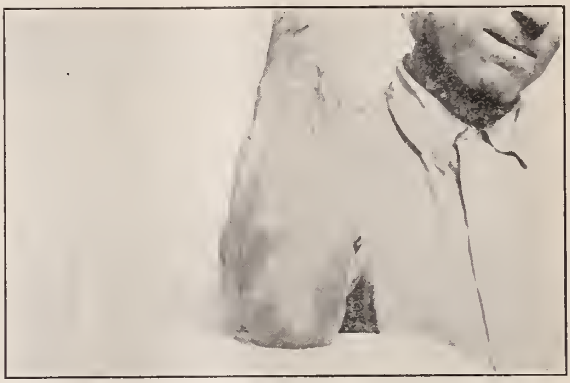


2. Take the day Treatment was instituted.

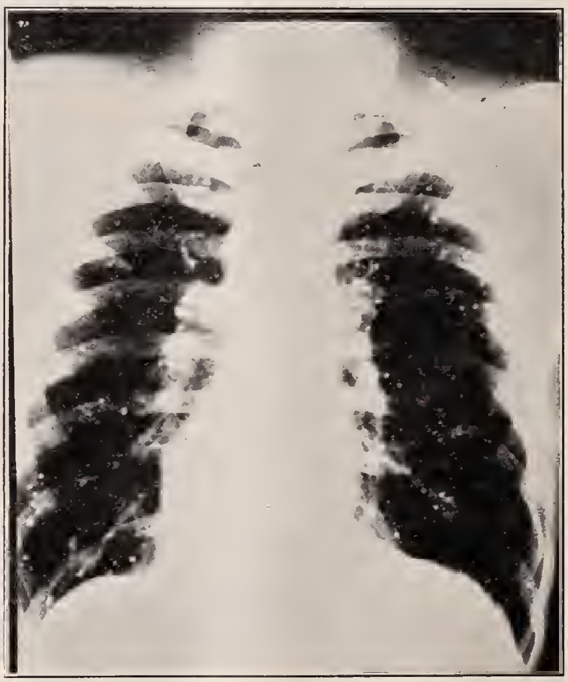
was negative. Patient was put on large doses of iodide of potassium. We began with 25 grs. three times a day and quickly ran it up to 100 grs. three times a day. This dose was continued for two weeks. We then dropped back to 180 grs. a day, the patient continuing on this dose for a period of six weeks longer. Locally the wounds were dressed with copper sulphate solution 1%. This was supplemented with a course of X ray therapy. Patient cytes, 18 small lymphocytes, 69 polymorphonuclear neutrophiles, 1 basophile, 4 eosonophiles. Blood smear showed nothing abnormal. X ray of the long bones showed no pathology. Urinalysis stood the medication very well, lesions being healed in three months' time. Treatment, however, was continued two months longer.

SUMMARY.

This case is of interest on account of its rarity. So far as I am able to find only two have been reported from Nebraska (2), although, no doubt, there are many that have not been published. This case also demonstrates the remarkable therapeutic effect of potasium iodide in this disease. Bevan is sponsor for this treatment. To be effective, it must be given in large doses. This patient stood 300 grs. a day for many days and only once showed signs of iodism. In view of the fact that blastomycosis has a tendency to invade the lungs, the radiograph of the chest presented food for speculation, as we know that nearly all cases of pulmonary blastomycosis present the clinical picture of tuberculosis and are usually diagnosed as such. Norris and Landis [3] state that "the symptomatology and physical signs of pulmonary or systemic blastomycosis often resemble tuberculosis so closely that a differentiation between the two is impossible, without a sputum examintion." They further state that the disease "may be widely scattered as in



3. After Three months' treatment. Healing somplte.



4. Showing areas of calcification of lungs.

miliary tuberculosis" also, "the nodules may be discrete without any associated inflammatory changes." Dunham (4) reports three cases of pulmonary blastomycosis coexisting with tuberculosis. The plates of all three of these cases showed calcified studding much as our plate shows it. In all three cases fungi were found in large numbers and tubercle bacilli in very small numbers. All these cases had been diagnosed tuberculosis. In discussing these cases, he says, "I am not able to say at this time that this remarkable picture of calcification is the result of the fungus. But these are the only cases in which we have demonstrated large numbers of fungi in the sputum. So far none of these cases have come to autopsy, but it is to be noted that the Roentgen ray plates of this series do not show the cavities which are spoken of in the literature of fungi of the lung." However, the roentgenologists to whom this plate was submitted are a unit in pronouncing it a healed miliary tuberculosis. The clinical facts would seem to bear out that diagnosis. If this infection began in the finger, as the history clearly indicates, it would seem improbable that the lungs could become invaded in the short space of three months and show such a marked calcification as is presented in this picture. Again this man feels perfectly well, has no cough, no fever, no loss of weight, no symptoms of any kind. It would appear, in spite of the lack of a tuberculous history, that this patient had at some time been afflicted with miliary tuberculosis, which had gone on to spontaneous cure.

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THE OMAHA AND COUNCIL BLUFFS OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETY. PROCEEDINGS, DEC. 21, 1921.

DR. W. F. CALLFAS' CASE.

Case History: Miss F. L. Age 21. Occupation, dancer. Present complaint: Deformity of nose and eyes.

In April 1916 a glass of acid was thrown into patient's face, some of the acid being aspirated into the nose. Water was the only thing applied to the face at that time. The patient was taken home. Her face was quite inflamed and felt drawn. Within a week, ulceration began and continued for fourteen months, during which time she received no medical attention, her mother being a christian scientist, she was treated by a healer of that faith. By the end of this time, the ulceration had involved the bones of the nose and those about the nose. Her eyes were also affected and during this interval, she could only distinguish between day and night. At the end of this period, she was treated by a doctor and inside of three months all ulceration had healed. Treatment consisted largely in the application blue ointment. After the ulceration had healed the patient received two courses of treatment by means of injections in the arm. Patient now presents herself for plastic surgery.

Past History: Patient lost all her hair at age of two years, which did not return until about the age of five. Does not know of any treatment received at this time. Had black measles at age of six. At nine years of age, had ulceration on palate and this was treated by caustic and injections in the arm. Typhoid pneumonia at the age of thirteen. Sterilization operations in 1917 three months after marriage.

Menstrual History: Began at nine years of age. Stopped at age of ten for one year. Has been regular since. No pain. Operation made no difference.

Marital History: Married in 1917. Lived with husband five months. (Divorced). No pregnancies.

Family History: Father dead. Aet. ? Bloody flux, lues. Mother dead. Aet. 46; influenza, had luetic infection. No brothers or sisters.

In discussing his case, Dr. Callfas said:

She came to us for correction of the deformity of the nose and the ectropion. Dr. Patton did a plastic operation on the left lower lid. I was somewhat puzzled to know what was best to do for the deformity. Nine years ago I used shin bone and later used rib and then rib and cartilage, and for the last two years, have been using celluloid to correct nasal deformities but in this case, there was nothing to support a bone graft or the celluloid, so I concluded to transplant fat. The nasal bones are destroyed, also the nasal process of the left maxillary, the soft palate and the hard palate, and the maxillary bones are deficient in front, leaving a considerable space. The septum is completely gone. All of this is the result of hereditary syphilis. This was first noticed when she was 9 years old. She was given salvarsan at that time. Seven years later, the bones sloughed as given in the history. She has a 2+Wassermann reaction at the present time. She has had one injection of salvarsan ten days ago with more to follow. The fat was taken from the inner side of the thigh. An incision was made along the middle of the nose following an old scar. The tissues were elevated extending down over the maxillary bone on the left side as there was a marked depression at this point. Enough fat was transplanted to allow for shrinkage.

DISCUSSION.

Dr. H. B. Lemere suggested showing the case later on when the work was completed. He thinks X ray findings would be very interesting to show the destruction of bone and what sinuses were remaining.

Dr. J. B. Potts asked if any of the other members had any cases of early involvement or perforation of the palate.

Dr. I. H. Dillon of Lincoln asked if the patient was given salvarsan and how exxtensive the treatment was.

Dr. Callfas replied that no treatment was given until the age of 16, when she had the acid thrown into her face.

DR. C. J. JAMES' CASE.

The doctor presented X ray plates showing the anterior clinoid process pretty well absorbed. The case was a boy of sixteen complaining of almost constant headaches. No symptoms of any derangement of the pituitary were present. The X ray report indicates that there was no pus in the sinuses but suggests the possibility of syphilis. Wassermann test was negative. The sella seems to be very large. The posterior process is perpendicular. The anterior clinoids are absorbed. There was only a moderate amount of discharge. One frontal sinus was very small and one was practically absent. Dr. James said he would try and have the case at the next meeting.

Dr. H. Gifford and Dr. J. B. Potts told of a striking example of much destruction in the neighborhood of the sella with no eye symptoms. The patient came in with a history of a malignant growth in the ethmoid on one side. He had been to Rochester, St. Joseph and Kansas City. A radiograph showed a very large tumor of the pituitary. The posterior clinoid process was obliterated. The anterior walls of the sella were pushed forward, apparently. In spite of all this depression above and from below, his fields were practically normal, eye grounds normal and vision normal. He had almost no headache. He had paralysis of the third and sixth nerves.

Dr. H. B. Lemere suggests looking further for the cause of headaches in Dr. James' case than the pituitary. In this case, as the X-ray shows several teeth with crowns, it might be well to look into the dental structures for the cause of the headaches.

Dr. J. B. Potts: I remember two cases of well established sphenoid cell infection in which the anterior clinoid process did not show in the radiograph and which we concluded did not show because of a possible rarifying osteitis in the sphenoid cells.

Dr. J. M. Banister reported the following cases:

Mrs. O. G. T.—Strabismus sursum vergens, comitant. I first saw this patient in April 1917. She manifested a marked deformity in the nature of an upward strabismus of the left eye. In looking straight ahead, the strabismus was directly vertical. In turning the fixing right eye to the right, the strabismic eye would be turned upwards and inwards to an exaggregated degree. Examination of the refractive condition cycloplegia resulted as follows:

R. E. V=20/30-w+.75DS=20/20
L. E. V.=20/70-w+.75DS=+.50 cyl. ax. 90=20/50
There was no paresis of any muscle.

Shortly after this examination I operated upon the strabismic eye with the object of securing a proper cosmetic result, performing the tuck operation with the buried catgut mattress suture upon the inferior rectus muscle of the affected eye. The cosmetic result can be seen in observing the patient. There is no fundus lesion to be detected in this eye with the ophthalmoscope. There is at present no diplopia for distance, although there is an exophoria of 10 degrees. There is diplopia for the near point, there being a right hypophoria of 6 degrees. There is an excessive degree of insufficiency of convergence for the near point. The patient complains now of a feeling of strain when she uses her eyes in near vision. Her fusion impulse is low. She has placed herself in my hands and desires relief from her present subjective symptoms. I intend to do a tuck in one internal rectus.

In doing this operation I do not do a tenotomy of any muscles. I feel that by using the advancement method with catgut tuck I can get all the effect necessary. If I cannot get sufficient effect by doing a tuck on one eye, I can get it by tucking the inferior rectus of the other eye. The lump disappears absolutely and does not interfere with a good cosmetic result.

Case II. Mr. H. C. S. Age 34. Cashier.

Epithelioma of right lower lid. On May 19th, 1921, the lower lid was operated upon by a modified Dieffenbach operation. The lid was divided into an anterior and posterior layer at the intermarginal line. The anterior layer was removed by a triangular incision, the base corresponding to the lid border. The line of the basal incision was extended outwards from the outer canthus, allowance being made for shrinking, and from the outer extremity of this incision a second incision was made downward and parallel with the outer margin of the triangle of skin removed, thus forming a quadrilateral flap from the temple and cheek. This flap was dissected up, turned inwards on its pedicle, and secured accurately in place to cover the raw triangular surface. The upper margin was united by through and through mattress silk sutures to the tarsal cartilage, which had been left intact. The triangular space left by the transplanted flap was covered in by stitching the sides together, no Thiersch graft being used.

The objection to the Dieffenbach operation is the lack of cartilaginous support in consequence of the removal of the tarsal cartilage. In the operation as described the cartilage is saved thus retaining this support. It is seldom necessary to remove this cartilage as in the earlier stages of the neoplasm it is rarely invaded, and it can safely be spared as indicated.

Dr. H. Gifford: This is simply a modification of the Dieffenbach operation in which there is some cartilage excised, a small V-shaped section. Dr. Gifford congratulated Dr. Banister on the results obtained in the two cases.

Dr. F. S. Owen asked whether in those cases of epithelioma involving the margin of the lid and overlapping onto the conjunctiva we could do a modified Dieffenbach operation. Cases he has seen nearly always showed an erosion of the lid which extends over onto the conjunctiva. It seems to him that this operation could hardly apply to cases of this kind.

Dr. Banister said he did not think it would work in that case.

Dr. J. B. Potts asked if it was necessary to use radium. Dr. Banister replied that he did not think so.

Dr. F. W. Dean thinks cases of skin cancer are not very malignant until later than when we see most of them and most of the cases do better by taking them out and then leaving them alone.

DR. L. B. BUSHMAN'S CASE.

Mr. H. C. C., age 21, whose family history was negative, entered the hospital complaining of dimness of vision, with lachrymation and pain in the right eye. He had variola when a child and gonorrhoea in the spring of 1921. The latter was treated for three months with recovery. About ten years ago, while working as a laborer in a mine, he accidently got some sulphur dust in his right eye which caused a severe infection with pain, photophobia and lachrymation. He remained away from work for two weeks. His eye sight was good and he experienced no pain or any other symptoms at the end of that time. About a year later, he began to notice a growth on the ocular coniunctiva, and this, while small at first, became progressively larger. This did not cause any pain or any other symptom, but five years later it had attained the size of a pea. He had this removed in Des Moines four years ago because of the appearance and because the tumor hindered his vision. He was free from any symptom after removal. Six months later, the tumor began to grow again, this time reaching the size of a hazelnut. About two months ago it began to bleed, averaging once a day, the bleeding being caused by winking. Sometimes the hemorrhage became quite severe. At times, the eye grew sore, he noticed dimness of vision and pus would accumulate in the eye.

When seen by Dr. Bushman, the eye presented a growth about the size of a hazelnut extending out from the external limbus of the right eye. Under anesthetic of 4% cocaine, he snipped off a piece of the growth. The patient had quite a profuse hemorrhage which, although rather severe, was easily controlled by pressure bandage. There were no symptoms of any intraocular trouble and no iritis. His vision was quite good and his tension was down. Dr. Bushman was not prepared to give a diagnosis: The interesting feature to him was that the patient had had this growth removed four years ago, after which it began to grow again until it attained the size of a small hazelnut. The dimness of vision he complained of was not due to intra-ocular trouble but to the fact that the growth extended over onto the cornea and naturally hindered his vision. The eye was perfectly clear so far as the cornea and iris were concerned.

Dr. F. W. Dean: Would it not have been better to have made an incision through the conjunctiva and taken the whole thing out instead of cutting the tumor in two.

Dr. C. S. James stated that he and Dr. J. M. Patton also saw this case about two months ago but that the patient disappeared. They considered it malignant. His vision was then 20/30. Conjunctiva normal. The tumor is possibly a little larger now than it was at that time. He had no pain and his tension was normal.

Dr. H. Gifford: The fact that it was removed four years ago is a strong argument against its being a malignant growth. He thinks radium would probably cure it without any excision at all and it may be quite a difficult thing to take it all out. He thinks its removal should be followed by radium.

DR. H. GIFFORD'S CASE.

Case 1. Mr. W., age 52. Jewish.

This patient had been seen ten years before when his vision was reduced on account of corneal scars but no evidence of glaucoma was found at that time. In November 1921, he returned with a typical history of glaucomatous attacks with pain in the eyes and halos around lights. Tension at that time was 63 in the right eye and 72 mm. (Schiotz) in the left. Under eserine, this was brought down to 45 in the right and 32 in the left. Vision with correction R. E. 20/10. On Nov. 25, 1921, a Curran's peripheral iridotomy was done on the right eye, following which the tension was reduced to 21 mm. The tension in the right eye remained around 65 mm. and on Dec. 16, 1921 the same operation was done on that eye, the tension being reduced to 27 in the right eye and 24 in the left. Vision was the same and fields showed no noticeable change.

Case II. Mr. S., age 62, Jewish.

Presented himself Nov. 23, 1921 complaining of poor vision in both eyes, which had been getting worse for the past six months. Vision with correction R. E. 10/200 Tension R. E. 68. The discs were pale and deeply L. E. 20/100+1. L. E. 72 excavated and the anterior chambers were both shallow. On the same day, Dr. Gifford performed a Curran's peripheral iridotomy which reduced the tension to R. E. 11. Tension remained down after the operation and on Dec. 16 was L. E. 17.

R. E. 17 Vision R. E. 6/200
L. E. 20 L. E. 20/70+2

Dr. Gifford stated he had several cases where the tension has kept down for about a year. In other cases, it comes back. He says it stays down for six or eight months and then, especially if eserine is not kept up, comes back. In the case of one young man who had lost one eye entirely, a trephining was done under cocaine. This caused the pupil to dilate and he never could get it back to normal again. His sight went from 20/70 down to counting fingers in two or three days and never came back, although his tension stayed down to 17. In the other eye, he did an iridectomy and kept the tension down. The tension again came back to 25 in spite of the use of eserine. On using eserine three times a day, tension remained 37. On using it five times a day, it came down to 25 and stayed there. He thinks an iridotomy is safer, especially if the field is narrow, than the trephining. Someone asked why not repeat the iridotomy if the tension went up again. Dr. Gifford replied that he had done this with temporary effect but he has come to the conclusion that the second iridotomy does not do any more than the first. If the tension comes up after the first operation, it is not worth while to do another.

Dr. Harry Gradle of Chicago said that he was very much interested in the question. He would suggest that Dr. Gifford give a patient uranin and then watch the flow into the anterior chamber. In the summer of 1918, Dr. Walter Parker of Detroit attempted to pick out the cases of glaucoma responding to iridectomy and those responding to trephining and to establish this on a basis of the depth of the anterior chamber; the shallow chamber calling for the iridotomy and the deep chamber the trephining. The iridotomy and trephining gave about the same result.

Dr. Gradle described an operation of his own which is still in the experimental stage in which he makes an incision back of the ciliary body and turns into this a tongue of conjunctiva which extends through between the ciliary body and the sclera into the anterior chamber. He had only used this on one blind and painful eye with success in bringing the tension down below normal and relieving pain.

He sterilized the conjunctival flap before burying it by using mercurochrome and mercuric cyanide instillations for several weeks before until the cultures showed a sterile sac.

Dr. H. Gifford discussed the question of preventing late infection. For years, it has been his practice to instruct patients who have had a trephining that they should use a collyrium of zinc chloride one-half grain to the ounce twice a day for the remainder of their lives. He mentioned two striking instances where a late infection after trephining had followed soon after neglect in the use of the collyrium.

DR. G. B. POTTER'S CASE

Mr. M., age 52, whose family history and previous medical history presented nothing important, presented himself for examination on account of poor vision in his left eye. His eyes had always been good until twenty years before.

History of the Present Illness: In 1898 while employed on an Iowa farm, he was engaged in cleaning up the yard one day when his rake struck an old rusty pail and something flew into his left eye causing it to pain considerably at the time. He was seen by the local physician but doesn't know exactly what was done for the eye. He thinks it was only a few days until the eye was apparently all right. Some few weeks afterward, however, he began to notice what he describes as something like a film coming over the eye. This gradually increased until he can no longer see light. He has had very little pain or discomfort at any time. He was told by a general practitioner that he had a cataract and that he should wait until it was ripe before his sight could be restored.

Physical Examination: Man is well developed and well nourished. Examination of the ears, nose and throat is negative. Teeth have all been extracted. Examination by clinician shows aortic arch reaching far over to the right with what he considers an aneurysm of the ascending portion. Blood pressure: systolic 170, diastolic 95. Wassermann reaction negative.

Eye Examination: The eyes are symmetrical. Brows rather prominent. Vision in the right eye is 20/25 and with the pinhole is 20/15-1. In the left eye, there is no perception of light. Lids and lachrymal apparatus normal. The anterior chamber rather shallow in the left eye. Cornea and conjunctiva negative. Pupils 3 mm. round with reaction to light and accommodation in the right. No abnormality in the color or markings of the iris of either eye. The tension in the right eye is 25 and in the left 40 by the Gradle-Schiotz tonometer. Form and color fields but slightly contracted in the right eye. Lens negative in each eye. Fundus examination: O. D.—Some diminution in caliber of arteries. Veins practically normal. There is a cupping or excavation of the disc on the temporal side occupying about ½ the diameter of the disc with the vessels pushed toward the nasal border. The depth of the cupping is about 1½ mm. The floor of the excavation is quite pale. O. S.—Shows an excavation of the entire disc to the depth of 3 mm. at the center with all the vessels crowded to the nasal side with arteries thready and veins slightly tortuous and smaller than normal.

Diagnosis: Glaucoma Simplex.

Dr. Potter stated that the patient's Wassermann reaction was negative. He admitted having had gonorrhoeal infection. He would like to hear someone discuss the treatment of the case, whether to do an ididectomy or iridotomy or what. The tension was 25 in the good eye and 40 in the blind eye.

Dr. H. Gifford thinks the logical thing to do is to try out the peripheral iridotomy in the blind eye, and if eserine does not hold the tension down in the good eye, try it on that one too.

DR. J. M. PATTON'S CASE

The case of a 19-year-old boy was presented to show the effect of the Shahan thermopphore in the treatment of deep corneal abscesses. The left eye had been inflamed for two weeks. There was no history of previous pain or injury. Vision when first seen was 20/200. The eye presented diffuse infiltration of the deeper layers of the cornea in the lower half. At the outer side, this has a yellowish tinge showing evidently a beginning suppuration. No definite pathology was found in his nose and throat except a moderate amount of pyorrhoea and some suspicion of an ethmoiditis. He had improved under the use of heat, atropine and the thermophore.

Dr. Gradle asked what temperature was used.

Dr. Patton replied that he used 151 degrees centigrade. In the old gas heated machine, he started at 160 and let it run down to 140.

DEFINITIONS OF A FEW BASIC MEDICAL TERMS.

Albert Schneider, M. D., Ph. D., Lincoln.
(From the Department of Pharmacy, University of Nebraska.)

The medical sciences have made rapid progress within the last two decades, necessitating a careful revision of medical terminology. For some time the life insurance companies have been urging such reform for the sake of greater accuracy in vital statistics. The rank and file in the medical profession still use such terms as "disease," "cured," "improved," local infection," "general infection," etc., without a true conception of the meaning of the terms. The greatest misapplication is made of such terms as "bacteremia," "radical removal of a malignant growth," "recurrence of symptoms and of disease," "recidivation and recrudescence of symptoms and of disease," etc. Not one in a thousand in the medical profession knows the correct meaning of the term symbiosis as applied to the biological, bacteriological and medical sciences.

When may we apply the term cure and when may we not? Are cancer, tuberculosis, syphilis and leprosy among the curable diseases? What is meant by "cure"? A person whose lungs contain encapsuled tubercular foci harboring viable bacilli is manifestly not completely cured even though all symptoms of the disease have long disappeared. A person "cured" of syphilis in early life, who later develops all of the symptoms of paresis, locomotor ataxia, etc., was surely not cured. There can be no doubt that most of the acute infectious diseases can be cured or are curable in the sense of the definition given below. The following definitions are submitted:

Arrest of Disease (Checking the Disease. Stopping the Disease).—Restoring to normality the abnormal and perverted functional and morphological changes in the tissues and organs of an organism, without the complete destruction or removal of the direct cause of the disease.

Temporary Arrest of Disease.—A restoration to normality as above defined for a period up to ten years.

Permanent Arrest of Disease.—A restoration to normality for a period over ten years and no recidivation of the disease until some unusual occurrence revives the activities of the sequestrated or encapsuled or dormant or temporarily inactivated primary or direct cause of the disease which survived the action of the medicinal substance or substances which may have been employed against the disease in question.

Arrest of Symptoms. (Bringing the Disease to a Standstill. Stopping the Symptoms. Checking the symptoms)—To bring the symptoms of a disease to a standstill. This condition or state is usually of short duration and is characterized by slight fluctuations in either direction from the point of the arrest of the symptoms. This is the first change observable in the curing or arresting of the disease.

Cure (to Heal).—To restore to normality the abnormal and perverted functional and morphological changes in the tissues and organs of an organism, including the complete destruction, or removal from the organism, or the permanent inactivation, of the substance or substances which acted as the primary or direct cause of the disease. (As a noun.—Any medicinal substance which will cure a disease).

Cytosis—The biological association of the cells of one tissue or organ with the cells of other tissues or organs, of one and the same organism. The following types of cytosis may be recognized.

Patrocytosis. Where the relationship is beneficial and protective, as in leucocytosis (phagocytosis). A form of compound symbiosis.

Paracytosis—Where the relationship appears to be entagonistic, as in carcinoma, sarcoma and in other malignant growths. Further investigation may prove this to be a form of compound symbiosis.

Disease. (Morphus, Illness, Sickness). Such functional and morphological changes in the tissues and organs of a living organism as may be subjectively or objectively recognizable as abnormal or perverted, exclusive of changes due to mechanical causes or injuries and changes due to the action of chemicals and of poisons.

Infection.—The invasion of one or more tissues or organs by pathogenic organisms giving rise to or capable of giving rise to recognizable disease symptoms. The infection may be local (limited to one tissue), multiple when occurring in several tissues or organs at the same time (bacteremia), simple (due to one species of organism), mixed (due to several different kinds of organisms). (See also Symbiosis and Cytosis).

Medicinal Substance (Drug. Medicine. Remedy. Internal Medicine).—Any substance or substances which when administered or introduced enterally or parenterally by any means or method whatesover, cures the disease, arrests the disease, or alleviates the symptoms of the disease, exclusive of mechanical appliances and of imponderable agencies.

Recidivation of Disease. (Recidivism. Relapse. Recrudescence). The return of an arrested disease.

Spontaneous Recidivation—The return of a temporarily arrested disease, without distinctly recognizable cause or causes.

Induced Recidivation.—The return of a supposedly permanently arrested disease, due to one or more distinctly recognizable causative influences or factors. May be confused with recurrence.

Recurrence.—The occurrence of a disease of which the individual had been cured.

Relapse.—(Remission)—exacerbation or return of symptoms after the stage of convalescence or marked improvement has been reached, and before the disease is either cured or permanently arrested.

Idiopathic Relapse.—Where the symptoms return without any apparent external cause. Malaria, African relapsing fever, American relapsing fever, and other diseases, are naturally or idiopathically relapsing diseases.

Isopathic Relapse.—Where the symptoms return apparently due to external causes, as neglect in treatment, added infection, exposure, etc.

Cyclical Relapse (Periodic Relapse).—Where the symptoms return repeatedly at internals of time. Certain forms of insanity, cyclical vomiting of children, and many pathological conditions and states, are forms of cyclical relapse.

Symbiosis.—The biological association of one or more species or varieties of organisms in or upon a common host. The following forms of symbiosis are recognizable.

Antagonistic Symbiosis (Parasitism).—That form of symbiosis in one organism is benefitted (the guest) at the expense of the other (the host). This is the case in the great majority of parasitic diseases.

Multualistic Symbiosis (Multualism. Commensalism).—That form of symbiosis where the several associates are associated for mutual benefit. This is the case in the mycorhiza of the cupuliferaen, the root modules of the leguminosae, and in many other highly interesting forms of life relationships in the lower as well as higher groups of both the animal and vegetable kingdoms.

Compound Symbiosis (Mixed symbiosis. Multiple symbiosis).—The mutualistic association of two or more different kinds of organisms upon or within a common host. This appears to be the case in leprosy and in certain types of pulmonary tuberculosis and probably also in other diseases.

Treatment.—The institution of methods, measures and procedures intended to prevent disease, to cure disease, arrest disease, or to amliorate or alleviate the symptoms of disease. Preventive treatment includes the use of substances which will prevent the onset of the disease, it being assumed that the one receiving the treatment has already been exposed to the infection. If the applied measures are intended to prevent infection by pathogenic organisms it constitutes preventive measures. Preventive measures and preventive treatment are usually combined.

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THE ANNUAL MEETING AND THE MAY JOURNAL.

The annual meeting date this year was set unusually early to avoid conflicting with national medical bodies. The May Journal was with the printer during the time of the annual meeting. The proceedings of the annual meeting will therefore appear in the June number. The Presidential Address, a masterful analysis of present day medicine, appears in this number, published by the courtesy of advance copy.

To those to whom you have entrusted the Journal it is a religious duty to have the Journal issue the first day of the month.

"PREMEDICATED ALCOHOL," VICIOUS.

The propaganda for premedicated alcohol now hovering over the Congress at Washington is purely in the interest of the proprietary medicine manufacturers. If it wins these interests will evade the payment of about $20,000,000 revenue annually, and of course the government will be short the same amount and nobody but the manufacturers of the proprietaries will be benefitted. Patent medicines sell for a fixed sum, and the proposed law if enacted will not affect the buyer.

Pharmaceutical manufacturers will not be benefited, neither will the buyers of pharmaceuticals be benefited, for it is selfevident that the pharmaceutical manufacturer could not keep on hand from five hundred to several thousand different premedicated alcoholic preparations for his manufacturing needs.

The proposed law is vicious. Every medical man should get in touch with the congressman from his district and tell him what he thinks about it.

THE PRACTITIONERS' COURSE IN OMAHA.

The practitioners' course offered during the spring of 1920 and 1921 by the University College of Medicine was an effort in the right direction. The practitioners of the state have been offered a wonderful opportunity to get postgraduate work of the highest order in their own state. Interviews with physicians who have attended these courses reveal universal enthusiasm. Like many other things we have near home, full appreciation of the opportunity is not in evidence. Distance lends enchantment. Faraway hills look greener. Chicago and New York appeal by the psychology of distance. These courses have not drawn from the rank and file the attendance that had been hoped. Those in authority have been encouraged by the universal expressions of satisfaction from those who have attended, with the work given. We hope that the practitioners' course will become a permanent annual feature of university work, and that the profession will learn to appreciate the fact that the University College of Medicine has the talent and the material to give courses equal to any given anywhere.

THE EFFECTS OF TOBACCO ON MAN.

With the adoption of the Eighteenth Amendment, it was predicted that an extensive anti-tobacco campaign would follow. Already there has been legislation against tobacco, and cigarette smoking in public dining rooms is a misdemeanor in Nebraska. (Sec. 12 of Chapter 180 of the Laws of 1919.,) For the physician, the tobacco question is rather a pertinent one, because we are frequently asked the question: "Is tobacco harmful?" Various opinions have arisen and erroneous conclusions have been drawn by misinformed emotionalists, whom we have always with us.

In the issue o fthe New York Medical Journal, for June first, 1921, William J. Gies, who is Professor of Biological Chemistry, School of Medicine and Dentistry, in Columbia University, and his associates, discuss "The Effects of Tobacco on Man," from a scientific standpoint. In their pharmacological consideration they write: "As used by those habituated to the plant, the effect of tobacco is chiefly confined to the vascular and psychic mechanisms. The immediate effect is a moderate and temporary rise in blood pressure, and an increase in the power of concentration, in consequence of a better adjustment of the ego to its environment. The rise in blood pressure, which is so frequently stressed by those laymen who condemn the use of tobacco, does not exceed in degrees or duration that which ordinarily follows a cold bath or sponge; it rarely ever equals that caused by such wholesome pastime as dancing. The effect of tobacco on the vascular and psychic mechanisms is due to the conjunctive action of nicotine, pyredine, colledine, aldehydes and carbon monoxide; it is not possible to bring about the same reaction by introducing any one or two of these substances into the organism. Nevertheless, it is certain that nicotine does play the most important role in provoking tobacco reactions, and it is also certain that the other constitutents of the plant, or its smoke, especially quinoline, hydrocyanic acid, ammonia, and volatile oils, are not present in sufficient quantity to play any part whatever in its action. These latter constituents are, in fact, present in equal or greater quantity in many other members of the vegetable kingdom that are commonly used by juveniles in the manufacture of make-believe cigarettes."

Perhaps the greatest fallacy relative to the use of tobacco is that the cigarette is the most harmful form because of the paper and kind of tobacco used in its manufacture but according to Gies, sequence of potency of the different forms in which tobacco is generally used runs as follows, in the order of greatest degree to the least: "chewing, smoking pipe, smoking cigar, smoking cigarette."

It is also frequently argued that the nicotine in tobacco gets hold of its users similarly to morphine and other habit-forming drugs. Gies states: "It is significant that no constant relationship exists between the amount of pleasure derivable from a given specimen of tobacco and its nicotine content, or the extent of any consequent physiological effect. The preference of the tobacco smoker does not persist in tobacco containing the greatest amount of nicotine. Statistics prove that the common drift of tobacco smokers is towards the mildest form of tobacco, from the cigar to the cigarette. This voluntary drift toward the less potent is the exact reverse of what is characteristic of drug addicts." The question then naturally arises: Why is tobacco so generally and universally used? That the psychic effect is the major factor is well expressed as follows: "The smoking impulse, or craving for tobacco, is merely the expression of the organism, artificially environed, for something that does not increase the store of energy—something that is not food. Man learned by chance that tobacco (after having once set into operation the specific antidotal mechanism of the body) gives rise to certain pleasurable sensations; that it allays restlessness, tranquilizes emotional inquietude and fosters repose."

Considerable comment has followed the use of tobacco by women, and we frequently hear of the startling increase in the number of women smokers. The authors clearly express themselves on this phase of the question as follows: "Tobacco has no special attractiveness for the female of the species. The specific antidotal mechanism of the body to tobacco will continue greatest on the male side in conformity with hereditary forces. It is the male of all races of the earth that exhibits the greatest fondness for tobacco. The same impulse that caused some women of yesteryear to wear the deforming corset and others of today to expose their legs to wintry winds will prompt a few to affect a fondness for tobacco, until another and more fetching stratagem of sex attraction has been thought of."

It would seem that this "habit," which scientific investigation has shown to be comparatively harmless, should need no further unfavorable legislation, especially so, when in these days of strife and turmoil, "an increase in the process of concentration and in consequence a better adjustment of the ego to its environment" is so important.

Gies and his associates concluded as follows:

The habitually moderate use of tobacco is not harmful to adults.

The moderate use of tobacco proves distinctly helpful to certain adult types.

The habitually excessive use of tobacco may prove harmful to certain individuals.

But the same holds equally true of all foods.

The excessive use of tobacco may prove harmful in certain neurovascular disorders.

The habitual use of tobacco by juveniles is harmful.

—Warren Thompson.

DIAGNOSIS.

There is nothing that has so retarded the growth of confidence of the Public in the medical profession and has so fostered the development of quackery and fads as insufficient and inefficient examination and errors in diagnosis. The very first essential in the correction of any ailment is a correct diagnosis. Without diagnosis all treatment is empirical and with it treatment becomes rational. We cannot agree with an eminent physician in a statement he recently made at a joint meeting of the Knife and Fork Club and the Lancaster Co. medical society that the general practitioner is able unaided to make a correct diagnosis in 85% of his cases. If this be true then specialists and clinics are wasting much valuable effort. We do not underestimate the importance of the general practitioner but with his strenuous life and limited equipment if he correctly and completely diagnose 50% of his cases we would say he is doing well.

Every physician who has practiced or who is practicing general medicine knows and feels his limitations in a large group of cases that do not admit of ready and easy diagnosis. These cases require the aid of the pathologist, the Roentgenologist or other specialists. Accurate diagnosis depends upon cooperation.

That which has characterized scientific medicine in the past and has differentiated it from the faddist and the charalatan has been and always will be its tireless pursuit of the truth which in its application to the practice of medicine means its constant endeavor to make an accurate and complete diagnosis in order that proper and rational treatment may be instituted.

If we are to progress in the practice of medicine we must place diagnosis in the foreground where it belongs.

—H. M. Hepperlin.

THE INTERPOSITION OPERATION IN FECUND WOMEN.

The immediate occasion for a report from a well known eastern clinic on the "Results In Interposition Operations For Procidentia and Prolapsed Uterus" made in Surgery, Gynecology and Obstetrics, March 1922, seems to be the case of a scrub woman of sixty-five who presented herself with "an ulcerated mass protruding from the vagina which proved to be the bladder with the uterus still in place below it." This followed an interposition operation six years before. Subsequently a ventral fixation was done and five months later she seemed well.

The indication for this operation as originally outlined by Dr. Watkins, and as must be evident to all, is "limited to the treatment of patients near, or subsequent to the menopause." Exceptional cases "necessitate excision of a portion of each fallopian tube to render the patient sterile." Yet thirty-four such operations out of one hundred eighteen in the series reported were performed in women under forty years and in "thirty-five operations done on women during the child bearing period" within six years "the tubes were resected only four times."

Fortunately only "two of our series became pregnant after operation." The statistics do not reveal the number of patients in the series who were exposed to this catastrophic circumstance but the author inferentially notes that "the majority of patients were of the dispensary class." Providence sometimes provides.

We are unable to determine whether the indictment drawn in the article is against the two women who contrarily and clandestinely conceived, or against the clinic which performed thirty-five interposition operations in women of the child bearing age with resection of the tubes in only four cases.

—J. W. D.

RELEASING THE PRISONED IMPULSE.

A distinguished physician and expresident of the Nebraska State Medical Association living in the peace and retirement of advancing years sent the following to the editor:

"Herewith is a clipping which you may have—docketed with much akin to it and which managing editors, medical, digest and fatten on. And yet perchance you may have other cares in life, getting out and about in the delightful friskiness of the March atmosphere. Nothing in this but a compound of up-to-date fustian, but exaltive, in containing a couple paragraphs of the purest and most soulful of English literature—blue ribbon stuff—paling anything of Bryan, on the origin of things. In fact here is a portrayal of the prime evil metabolic process existing before the beginning, haunts us through life and extends beyond the grave. Even until your last nickel is transported into the domain. Selah.

“ ‘We chiropractors work with the subtle substance of the soul. We release the prisoned impulse, the tiny rivulet of force, that emanates from the mind and flows over the nerves to the cells and stirs them into life. We deal with the magic power that transforms common food into living, loving, thinking clay; that robes the earth with beauty and hues and scents the flowers with the glory of the air.

“ ‘In the dim, dark, distant long ago, when the sun first bowed to the morning star, this power spoke and there was life; it quickened the slime of the sea and the dust of the earth and drove the cell to union with its fellows in countless living forms. Through aeons of time it finned the fish and winged the bird and fanged the beast. Endlessly it worked, evolving its forms until it produced crowning glory of them all. With tireless energy it blows the bubble of each individual life and then silently, relentlessly dissolves the form and absorbs the spirit into itself again.

“ ‘And yet you ask,’ “Can chiropractic cure appendicitis, heart trouble, cancer, goitre, high blood pressure, flue?” ’ ”

NATIONAL BOARD OF MEDICAL EXAMINERS.

The dates for the next two examinations of the National Board of Medical Examiners are as follows:

Part I and 11, June 19, 20; 21, 22, and 23, 1922.

Part I and 11, September 25, 26, 27, 28, and 29, 1922.

Applications for the June examination should be in the Secretary's Office not later than May 15th, and for the September examination not later than June 1st. Application blanks and Circulars of Information may be had by writing to the Secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia, Pa.

THE SOCIETIES.

The regular monthly meeting of the **Saline County Medical Society** was held at the Crete public library on the evening of April 12th., Dr. Harry Everett, Lincoln, was the guest of honor and gave an address on “Traumatic Injuries of the Brain.” Dr. Roscoe Smith, Lincoln, spoke on the “Modern Therapy of Malignant and Non-Malignant Tumors.”

The **Scottsbluff County Medical Society** March 24, met in the chamber of commerce rooms, with a fair attendance. Dr. E. E. Griggs Scottsbluff, and Dr. Mary Sheldon, Mitchell, read scientific papers.

Dr. C. C. Rogers, Chicago, professor of brain surgery at the University of Illinois college of medicine was the guest of honor at a meeting of the **Lancaster County Medical Society**, at the Orthopedic hospital, Lincoln, April first. His subject was “The Treatment of Cranial and Intracranial Lesions.”

The **Nebraska Pharmaceutical association** will hold its annual meeting at Fremont, June 20-22. W. E. Clayton, Grand Island, is president.

Remember the meeting of the A. M. A. St. Louis, May 22-26. The nearness of the place of meeting is expected to appeal to Nebraska physicians.

The **American Proctological Society** will have its annual meeting at St. Louis, May 22 and 23. An interesting program of 17 numbers is promised.

By the will of the late N. C. Sherman, of Gordon who died without issue, the **Nebraska Children's Home Society** becomes heir to $35,000 worth of real and personal property, the largest bequest ever made to this institution.

The following resolution was presented to the **Cedar-Dixon-Thurston-Wayne and Dakota Medical Society** and was by unanimous vote adopted.

Whereas, we have authorative information that certain specialists, who are members of regular medical societies, are consulting with members of the medical cults, and have patients referred to them by members of the cults for examination and operation, and,

Whereas, these actions are not in conformity with the principles advocated by the American Medical Association, as being to the best interests of society in general and the medical profession in particular, and,

Whereas, reflections are cast on the highest standards set by the Council of Medical Education and encouragement is lent to the low class medical schools of various forms, therefore,

Be it resolved that it shall be the duty of any member of this society who upon verification of the facts, shall notify every member of the society in good standing, and

Be it further resolved, that a copy of these resolutions be sent to the secretary of the Woodbury county medical society, to the secretary of the Douglas county medical society and to the Editor of the Nebraska State Medical Journal for publication.

HOSPITAL NOTES.

The Ford Hospital, Omaha, the creation and hope of Dr. M. J. Ford, has passed into other hands and will be known at the Paxton Memorial hospital.

According to those in authority the Nebraska University hospital, Omaha, with 130 beds for worthy patients, has 200 applicants for admission on the waiting list and should have at least 250 beds.

Two-thirds of the necessary amount to be raised by the McCook community toward the Dominican hospital was reported subscribed a month ago. It is to be a $75,000 hospital and the community is to raise one-half of the amount.

The uncompleted North American hotel, Scottsbluff, has passed to the Methodist hospital board, and will be converted into the Scottsbluff Methodist hospital.

The Lincoln City hospital board sent a questionairre to the physicians of the city asking suggestions for the location and for the plan of the new hospital to be. True to the characteristics of the medical fraternity, of 140 asked, but 40 replied. It will be interesting to know later whether the other hundred will do the “kicking.”

Five hundred dollars was voted by the Scottsbluff county medical society toward the Methodist hospital building fund.

The hospital idea at Falls City will not be “down-ed." Recent reports are that an effort will be made to convert the Falls City hospital property into a city hospital.

NOTES ABOUT THE DOCTOR.

Dr. E. R. Hays, Falls City, is reported seriously ill.

Dr. Davis Schall, Otoe, suffered a paralytic attack, a short time ago.

Dr. C. N. Moore, formerly of Scottsbluff, has recently located at Oshkosh.

Dr. F. L. Frink, Newman Grove, was reelected mayor at the April election.

Dr. J. W. Duncan, Omaha, has gone to Europe for four months post graduate work.

Dr. N. T. Johnson, Upland, councilor for the tenth district was reported very ill last month.

Dr J. A. Peters, Springfield, is reported in an Omaha hospital, as a result of "stomach disturbance."

Three Omaha doctors, Dr. Floyd Clarke, Dr. Eugene Wolcott, and Dr. J. W. Duncan, have gone to Europe for study.

Dr. G. O. Dunseth, formerly at Torrington, Wyo., but more recently located at Harrison, Nebr., has located at Mitchell.

Dr. F. S. Owen, Omaha, has returned from a six week's vacation at his California home at Miramar, near Santa Barbara.

Dr. Miles J. Breuer, Lincoln, is taking post graduate work in diagnostic methods at the George Washington university, St. Louis.

Dr. R. P. Gilligan, O'Neill, a former president of the Nebraska state medical association, was elected mayor of O'Neill at the spring election.

It will interest the profession that our distinguished co-worker and friend. Dr. A. S. V. Mansfelde, Ashland, is compiling a history of medicine in Nebraska.

At the annual meeting of the Association of American medical colleges, Chicago, Dean Cutter of the University of Nebraska college of Medicine was elected vice president.

Dr. George W. Fegers, Nebraska City, accompanied a patient to New York City, to consult Dr. Adolph Lorenz. He also spent two weeks at the clinics of the metropolis.

Dr. H. S. Summers and wife, after a winter spent in Texas and Florida have returned to their former home. West Point, where it is understood the doctor will again engage in practice.

A damage suit for $75,000 has been entered in the Douglas county courts against a prominent physician and a dental surgeon, the suit involving the results in a case of fractured jaw.

Dr. W. Eugene Wolcott, Omaha, sailed about the middle of April for a four-month's tour of the orthopedic clinics of the British Isles, France, Germany, Austria. Italy, Belgium and Holland.

Dr. H. Gifford, Omaha, and Dr. Casey Wood, Chicago, while in South America the past winter, penetrated two hundred miles into the interior, up the wilds of the Essequibo and Potara rivers.

Dr. E. A. Sears, Decatur, had the harrowing experience of plunging with his car over a 25-ft.. embankment between Decatur and Macy. The doctor did not need any repairs, but the car oh, well!

For Sale or Exchange—Twelve beds, two-story brick hospital. Good office and living rooms, in good town, northeast Nebraska. Fine farming country. Collections excellent. No competition. Address Nebraska State Medical Journal, Omaha.

Among Nebraskans who at the recent meeting of the Congress of the American College of Physicians, Rochester, Minn., received Fellowship:—F. A. C. P.,—are Drs. George Pratt, W. F. Milroy, Frank M. Conlin, F. W. Heagey, and Julian Blackman, Omaha, and Miles J. Breuer, Lincoln.

Dr. A. D. Dunn has resigned from the medical faculty of the Creighton University and from the staff of St. Joseph's hospital, resignation to be effective June 1, 1922, at the end of the present scholastic year. Dr. Dunn has been a teacher at Creighton for over fifteen years.

HYMENEAL.

Dr. Hugh O'Donnell of the Lord Lister hospital, Omaha, and Miss Helen Foster, Plattsmouth, were married in Papillion, Feb. 21.

Dr. Edward Tanner and Mrs. Mary Berry, Battle Creek, were married in March.

Dr. E. C. Underberg, formerly of Stanton, was married to Miss Bertha Hopper, his former office associate, at Council Bluffs, March 25. They expect to live in California.

NECROLOGICAL.

Mr. Martin Van Buren Clark, a pioneer citizen and first physician of Clay county, died at his home at Sutton, March 24, aged about 82. Dr. Clark was a veteran of the civil war, and a graduate of Western Reserve University, 1869. The early proceedings of the Nebraska State Medical Society bear record of his activities as a member of the organization.

Dr. C. J. Alger, some years ago, a practitioner at Leigh, Howells and Pilger, died at Ideal, S. D., in March, age about 50. About a dozen years ago Dr. Alger was an active member of the house of delegates of the Nebraska State Medical Association.

Dr. John B. Duff, Cedar Creek, Keokuk medical college, 1884, for many years a physician of Cass county, died March 21, in his seventy-seventh year.

Dr. W. S. Payne, a former practitioner at Woodbine, Iowa, and who as locum tenens was in practice at Neligh and Wayne for short periods during 1920 and 1921, died at Woodbine, Iowa, March 10, of a tumor of the brain.

BOOKS RECEIVED.

Clinical Tuberculosis. By Joseph Elbert Pottenger, A. B., M. D., Cloth. Two Volumes.

Second Edition. Pp. 707-725. With illustrations. Price $15.00. St. Louis. C. V. Mosby Co., 1922.

Opiate Addiction. Its Handling and Treatment. By Edward Huntington Williams, M. D. Cloth. Price $1.75. Pp. 194. New York, The MacMillan Company, 1922.

The Health of the Child From Two to Seven. By Francis Hamilton MacCarthy, M. D. Cloth. Price $1.50. Pp. 235. New York, The MacMillan Comany, 1922.

The Physician Himself. By D. W. Cathell, M. D. Cloth. Price $3.00. Pp. 360. Crowning Ed. Published by the Author, Baltimore, Md., 1922. To be reviewed next month.

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WHAT SURGERY OFFERS IN GALLBLADDER DISEASE.*

John B. Deaver, M.D., Philadelphia, Pa.

It has been my pleasure recently to speak on various aspects of the relation of the surgeon to the public health. It is indeed a pleasure to come to you today to discuss the public health from another aspect. We are living in an age where we are expected to conserve life. This is an age of preventive medicine. We must as physicians and surgeons awaken to our opportunities. When at the operating table I view living pathology in its end results, I realize what opportune intervention might mean in the conservation of human life.

There are few lesions in the abdomen more frequently and more widely discussed than the diseases of the gallbladder. The cause for this is easily recognized when we find that next to appendicitis, gallbladder disease is probably the commonest intra-abdominal lesion. Here then we have a field for our endeavors; a field, which if intelligently searched for pathology, not in its terminal manifestations but in its earliest stages, will yield increasing hope for our future work. Although Galileo suggested cholecystectomy for gallbladder disease and his pupil Zambecari actually performed the operation on the dog, gallbladder surgery is a modern development. Just as the credit for the first ovariotomy, nephrectomy and appendectomy belongs to America so the credit for the first surgical intervention for gall stones belongs here also. It was in 1868 that John Stongh Bobbs performed the pioneer cholecystostomy. One of the greatest records in surgical literature is the work of Courvioisier, published in 1890, on diseases of the gallbladder and the bile ducts. Nothing was known then of the early symptoms of gall stones; of the relation between them and other visceral degenerations, of the symptoms of stones impacted in the biliary ducts; or of the relationship of systemic infections to the biliary passages.

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*Read before the Nebraska State Medical Association, Omaha, April 26, 1922.

Hope for future success lies in a clearer conception of the normal physiology of the liver, the gallbladder and the biliary passages. As this becomes more definite we shall be able to more clearly interpret the pathologic physiology we meet.

Anatomically we know that the gallbladder is lined by mucous membrane similar to that which lines the intestinal canal. Its muscular coat consists of three thin layers. On its exposed surface, and occasionally completely, it is covered with peritoneum. The gallbladder is supplied with blood vessels and likewise with numerous nerve fibers and ganglion cells. It is abundantly supplied with lymphatics. This has a most important relation to the subject, for the paths and avenues by which infection reaches the biliary system are still a mooted point. The lymph ducts of the gallbladder join in glands which on the right lie at the head of the pancreas near the common duct and on the left near the hepatic artery. On their way the greater part of both divisions pass through a lymphatic gland situated at the neck of the gallbladder. The network of lymph ducts on the posterior surface of the head of the pancreas come from the gallbladder. While it is possible for infections to travel up the ducts to the biliary system or to occur directly through the blood vessels, it is much more likely as Evarts Graham has only recently shown that in the majority of cases cholecystitis represents a direct extension "through the lymphatics "from a liver already inflamed." This infection may be brought to the liver through the portal vein or more rarely through the hepatic artery. It is therefore a simple matter to understand the corelationship of the abdominal viscera to the biliary system and more especially the corelationship of hepatitis, cholecystitis, choledochitis, pancreatitis, and appendicitis.

The most striking feature, with regard to the normal contents of the gallbladder is the difference between its bile and the bile which comes directly from the liver. It is this difference between the two types of bile which apparently disappears as the result of the absence of gallbladder function, either through disease of the organ or through its surgical removal. This question, is probably a most important one and requires careful consideration. But before entering upon this discussion, it may be well to consider the mechanism by which the bile collects in the gallbladder and from there is poured out into the duodenum through the common bile duct, and what is its effects on the intestines. The flow of the bile is not a continuous one, but is intermittent. This is due to a small sphincter of smooth muscle which acts as the guardian at the papilla of Vater. It was discovered by Oddi in 1887 and has been named after him. This sphincter action serves to maintain a definite pressure in the biliary duct system. The sphincter is developed to such an extent that it can withstand an interductal pressure of 675 mm. of water. This sphincter, then, is tonically closed, and its opening is probably in the nature of an inhibitory reflex by which the tonic action of its center, possibly in the lumbar cord, is suspended. The higher nerve centre controlling this reflex is entirely unknown. There are still numerous unsolved questions concerning the exact circumstances by which the process takes place. It is very probable, however, that it has a certain definite time relation to the passage of food and is affected by the quality of the digestive products passing from the stomach into the duodenum. During digestion, it has been shown with some degree of accuracy, the bile increases the activity of the three pancreatic ferments. It also increases the solubility of fatty acids; it aids in the neutralization of the acid gastric juice, incidently destroying or inhibiting the activity of pepsin; it stimulates peristalsis; it is a means for carrying off toxic amino acids and other poisons, and like the urine under certain circumstances may also carry off bacteria as an excretion. The question of the bactericidal power of bile is very important, and although the clinical evidence of this power of the bile is not entirely supported by laboratory experiments, yet it very likely has a certain bactericidal influence. It is an interesting observation, that while the bile of a badly infected gallbladder may often be bacteria free, yet organisms can be found in the walls of the organ.*

The greatest difference between the gallbladder bile and the direct liver bile is in its degree of concentration. Although this difference has been known through chemical analysis for some time, it is only recently, that is, since the appearance of the works of Rous and McMaster that we have any adequate information as to the rate at which the gallbladder is able to concentrate bile, as well as other details of the secretion of the gallbladder itself. From a surgical standpoint the important questions are, does the gallbladder concentrate bile by removing simply an isotonic saline solution, or does it also remove substances other than this salt; are any other substances in addition to mucus added to the gallbladder bile; finally has bile which has been stored in the gallbladder and is then discharged any greater functional efficiency or any additional uses than ordinary liver bile? On the answers to these questions rest many of the arguments for and against surgical treatment, particularly the removal of the gallbladder; assuming of course,—and this must constantly be borne in mind —that a gallbladder once diseased can under medical treatment be restored to normal, or normalcy, to use the current phrase.

Before proceeding, permit me again to digress for a moment and say a few words on the discharge of bile into the duodenum. It is commonly assumed that the mechanism of the opening of the sphincter of Oddi, and the contraction of the gallbladder follow a law of contrary innervation. But this particular mechanism has never been satisfactorily demonstrated; it still remains an hypothesis, a very tempting and attractive one, but still only an hypothesis. Numerous investigations which have had for their object, the demonstration and the estimation of the contractile power of the gallbladder have all yielded negative results. The pathologists have long taught us that the gallbladder is a reservoir for the storage of bile not needed at that particular time and that during digestion the contractions of the gallbladder force the bile into the common duct and thence into the duodenum. I do not believe in this theory. The average gallbladder holds only one or two ounces and a reservoir of this size, in comparison to a biliary output of forty or more ounces, is negligible. The muscular coats are not developed so that contractions are capable of emptying the viscus. It is much more probable that the gallbladder acts as a safety valve or suction bulb protecting the liver parenchyma from the harmful influences which would result from excessive back pressure in the ductal system. The most that has been shown is the presence of a slow rhythmic, smooth muscle tonus, in which the bile passages also take part. The strongest argument, and one which I frequently mentioned, to show that the gallbladder possesses very little contractile power, is presented by the absence of hypertrophy of the muscle of the gallbladder wall, in spite of the innumerable instances in which a stone has been impacted or in which other obstruction has been present in the cystic duct; compare this with the totally different picture presented in the case of obstruction of other smooth muscled hollow viscera. The sphincter, as has been said, is able to resist a pressure up to 675 mm. of water; while the pressure exerted by the gallbladder on its contained bile has never been shown to exceed the secretory pressure of the liver, namely about 200 mm. of water. We are therefore forced to conclude, at least for the present, that when the sphincter of Oddi opens, bile runs out because of the reduction of pressure at the site of the sphincter and not because of any pulsative action of the gallbladder itself. The smooth musculature, therefore, simply remains in a state of tonus sufficient to prevent over distension, and is never sufficient to add any particular pressure to the contents within its walls. Therefore I ask you what can be accomplished with buckets, pails or dippers when infection lurks between the glands, or in the glands and in the walls of the gallbladder, to say nothing of infection which may reside in the bile or infection which never gets out when it is pocketed in between stones?

This naturally leads us to the question of how to recognize the presence of infection in the gallbladder region. While the typical clinical symptoms of cholecystitis are rather well defined, still a positive diagnosis is not always possible. For example, the presence of a long appendix in a high position often

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Report of the Pathological Laboratory of the Lankenau Hospital. Culture of bile. All cases, numbering several hundred, including chronic and acute cholecystitis; Bile culture, positive 50 percent, negative 50 percent. The organisms vary, comprising bacilli, cocci, streptococci, staphylococci, etc. The number of positive cultures varies directly with acuteness of the process, where after the chronic interstitial with no acute lesions, will yield culture positive in only 20 percent of the cases.

times gives signs and symptoms typical of gallbladder disease, and very often, on the other hand, a clinical picture typical of gastric or duodenal ulcer will be found to be referable entirely to a diseased gallbladder. Likewise also the various laboratory tests may be misleading since the digestive processes are so apt to be similarly affected by gastric, duodenal and gallbladder conditions, and as we all know, X ray diagnosis also frequently fails of confirmation at the operating table. This question of diagnosis, although of paramount importance and entirely germane to my subject, since according to the French proverb "he who diagnosis well cures well," I cannot enter upon at this time, as I am anxious to come to the main point of my discussion.

In answering the question, what does surgery offer in disease of the gallbladder, we may in Yankee fashion reply with another query, what does medical treatment offer in this condition? Is it possible to prevent the formation of gall stones, and is it possible calculi once having been formed to dissolve them by medical treatment? The first question is one that is purely hypothetical inasmuch as there is no way of telling whether or not in a given case gallstones would have formed. As for the second question; while in the chemical laboratory the dissolution of gallstones is accomplished and clinically it is said to take place by means of cholagogues, mineral waters, Carlsbad treatment and the like, the important point to be remembered, and one that cannot too often be repeated is, that it is not the stones alone that cause the trouble but the infection whether it be the cause or the result of the stones that must be removed. As I have already remarked it is our experience at the Lankenau Hospital, that in a very large percentage (80) of interstitial cholecystitis, the bile is sterile. It is for this reason among others that I believe that nonsurgical drainage of bile while it may eventually find a place as a diagnostic aid, is of doubtful curative value in interstitial cholecystitis, especially of the calculous variety. That the medical treatment of disease of the gallbladder and the bile passages is usually not productive of a permanent cure is evidenced by the numerous cases that finally come to operation. What then are the indications for surgery in these cases? In weighing the subject I must bid you "Clothe not the truth with vanity; neither conceal the truth against your own knowledge." I have no argument with the internist who would conserve a functioning gallbladder. You are familiar enough with the potential dangers of an inflamed appendix, a gastric or duodenal ulcer, but are you cognizant of the potential dangers of an inflamed gallbladder? We must not conceal the truth. We must think of those who are depending upon us for advice and assistance. Think then of malignant disease of the biliary passages, of empyema of the gallbladder, of rupture of the gallbladder and a resulting peritonitis, of hepatitis, of hepatic abscess, suppurative cholangitis, pancreatic lymphangitis and interstitial pancreatitis, of acute pancreatitis, of deforming upper abdominal adhesions and many other complications, all of which can be prevented if we would not conceal the truth against our own knowledge. Can we then safely allow an organ which we know is infected and which has assumed a pathologic physiology to remain in the abdominal cavity?

My experience has led me to the firm conviction that a gallbladder once diseased rarely, if ever, resumes its normal aspect or function. On the basis of this belief, it is not too much to say that a second attack of cholecystitis possibly, and a third one positively warrants the serious consideration of surgical interference. The main reasons for this are: First, that cholecystitis is in most all instances due to infection; secondly that the infection commonly resides within the walls of the gallbladder, and that an infected gallbladder carries with it potential dangers, and third that the gallbladder is becoming more and more recognized as a source of focal infection. As a source of focal infection I have particularly in mind at this time myocardial degeneration. I know that many cases of death from this condition are frequently due to the toxemia of an interstitial cholecystitis. Incidently I hope I may be permitted to state that this condition does not respond to the usual heart tonics prescribed in these cases. Oftentimes, I believe, the use of heart tonics and stimulants does more harm than good. Digitalis is a much abused drug. If drugs must be resorted to, I should always prefer morphia. But in the last analysis, or rather let us say in the first analysis, early recognition and early operative treatment of the original source of the toxemia are essential factors in preventing the development of this serious aftermath.

It would be tempting at this point to consider the cases that have been restored to apparently complete normal health after removal of the gallbladder. No doubt many of you have numerous instances in mind from your own personal experiences. So I will not weary you with figures nor with the citation of cases. But I will stress the point that the degree of restoration to normal health is in direct proportion to the duration of the disease before operation. In other words, a patient with a history of recurrent attacks of cholecystitis, extending over many years, calculous or noncalculous, cannot expect to be and will not be as completely benefitted as one who came to operation after six months or a year following the onset of symptoms of gallstone disease. One of the evil effects of prolonged disturbance is disturbances in the digestive tract. The influence on the nervous tone of the patient; that is, a neurasthenia which frequently becomes habitual and often takes a long time to cure even after the removal of its fundamental cause, has been a common observation in the Follow-up Clinic of the Lankenau Hospital.

It may be of interest to consider some of the changes that take place in the mechanism of biliary function after removal of the gallbladder. As far as we know the absence of the gallbladder has not been known to affect the metabolism as a whole nor to influence the prospective duration of life. In experimental work on animals, notably that of Judd & Mann at the Mayo Clinic. a comparative study of animals with and without a gallbladder showed that after cholecystectomy all the ducts outside the liver dilate unless the sphincter of Oddi is destroyed simultaneously with the cholecystectomy. This dilatation occurs early and quickly reaches its maximum development. This ductal dilatation is due to the attempt to maintain normal interductal pressure and the dilatation progresses until the biliary tract will contain as much bile as the gallbladder or the sphincter becomes paralyzed from dilatation and is not able to withstand its normal pressure.

The laws of adaptation and compensatory changes are among many happy provisions of nature. Among such changes in the human cholecystectomized subjects there is a change in the flow of the bile; some authorities claim that in the favorable cases there is an increase in the periodic flow of bile, while in the less favorable ones the bile excretion is a continuous one. Very likely there is also a more delicate adjustment in the entire digestive apparatus, the liver, the pancreas, the stomach and the duodenum. At least this would appear to be the case, otherwise we would not be able to record so satisfactory a percentage of good results after removal of the gallbladder.

Compensatory changes are also present in the shape of dilatation of the hepatic and the cystic ducts; in animal experiments where the stump of the cystic duct was left long enough there occurred a genuine hypertrophy of the walls of this duct which assumed the functions of the gallbladder. The cystic duct even if left long will not dilate if (1) the resistance to the flow of bile is below the resistance of the extrahepatic ducts to dilate, or (2) if the capacity of the biliary passages is sufficient to accommodate variations in pressures which might overcome this resistance, or (3) if adhesions have prevented dilatation or (4) other less resistance extrabiliary ductal portions dilate and accommodate variations of intraductal pressure. But of course in the operation of cholecystectomy as it is carried out today we cut the duct off close enough to the common duct to prevent this dilatation. This dilatation of the extra hepatic ducts with consequent paralysis of the sphincter of Oddi and a final reduction of interductal pressure is an explanation of why cholecystectomy helps to cure pancreatitis when the latter is caused by bile from the common duct entering the pancreatic ducts.

A number of the queries presented in this discussion have, I am aware, not been fully answered, for the simple reason that the entire question of the physiology of the gallbladder and the bile passages is, as I started out by saying, still in the controversial stage. I dare not venture to predict what will happen when this and other moot questions in medicine and surgery are once settled, if they ever will or can be. Suffice it to say for the present; surgery in diseases of the gallbladder offers the prospect of complete relief in at least 90 percent of cases. This does not take into account the prophylactic value of the radical operation, for that is purely hypothetical. Nevertheless in these days when prevention looms so large in medical circles it is important also that preventive surgical measures should occupy their proper place in the minds of the profession as well as of the laity.

INFECTIONS FOLLOWING OR COMPLICATING TONSILLECTOMY AND ADENECTOMY.*

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Tonsillectomy is being performed so frequently and so generally nowadays that we are apt to lose sight of or minimize the dangers incident to the operation. Hemorrhagic, traumatic and nervous complications have been dwelt upon rather extensively in the literature. Infectious complications are not so common and have received less attention. Why does one tonsillectomy patient develop infection while another one does not? We wish to recall rather briefly the blood and lymph supply of the tonsil, to touch briefly some of the infectious complications of tonsillectomy that have been discussed in the literature and to report a few of our own cases.

Anatomy: Comparative embryological studies by Poynter(1) have shown that the human tonsil develops in three separate masses. These may be designated as postero-superior, middle, and inferior masses and upon their relative development, depends the ultimate form of the tonsil. Thus, if the middle mass develops most as seems to be the usual rule, the globular type of tonsil results. The postero-superior may develop excessively in which case the superior tonsillar fossa is not only obliterated but the upper pole of the tonsil overhangs the body like a helmet. If the greatest development occurs in the inferior mass the plica triangularis is wanting and the tonsil extends forward to near the anterior pillar of the pharynx.

Circulation: The superior tonsillar mass is supplied by the descending palatine branch of the internal maxillary. The middle mass by the ascending pharyngeal, ascending palatine and a ramus of the dorsalis linguae. The inferior mass receives a branch from the ascending palatine and also from the dorsalis linguae. It is worthy of note that the entire supply of the tonsil is from the external carotid which may be easily compressed if emergency requires.

Veins: About the crypts is a network of veins which fusing, involve the whole of the tonsillar masses. This tonsillar plexus lies on the lateral aspect of the tonsil in the space between the tonsil and the constrictor muscle. It drains into the internal maxillary vein above, the ranine vein anteriorly and the palatine vein below. At the postero-lateral aspect of the lower pole there is a confluence of veins into one large vein which either joins the pharyngeal plexus here or passes out to open directly into the internal jugular. This accounts for the persistent oozing sometimes encountered in this area.

Lymphatics: Efferent lymphatics originate in the tonsil itself and drain into the ventral division of the superior deep cervical lymph nodes. One of these nodes lying behind the angle of the mandible beneath the sterno-mastoid muscle is so generally enlarged in tonsillar infections that it has been called the tonsillar lymphatic gland. The deep cervical chain (15 to 30 in number and distributed along the carotid and internal jugular) also receives afferents from the adjacent pharyngeal mucosa, the lower part of the nasal chloanae, the mouth and lingual tonsil at the base of the tongue. It is thought by Clendening(11) and Grober(12) that there is a direct pathway between the tonsil and the apex of the lung doubtless via the lymphatic glands. The retropharyngeal glands lie in loose areolar tissue in the space behind the posterior pharyngeal wall and anterior to the prevertebral muscles at the level of the second and third cervical vertebrae. They are arranged vertically in four groups; two on either side of the midline of the pharynx. They receive afferents from the accessory nasal sinuses, nasal fossae. pharynx and larynx. Their efferents drain into the superior deep cervical nodes.

Factors determining the development of infection: Infection following tonsillectomy is usually more severe in adults. The temperature ranges 2 or more degrees higher and the soreness lasts 3 or 4 days longer. According to Ballenger(2) and Hurd(3), the development of infection or not in these cases depends on: 1. The resistance of the patient. 2. The virulence of the bacteria present. Under the resistance of the patient we may consider as factors: First, the general tone of the patient; secondly, the local tone of the tissues. Thus, when the vital forces are low as following acute infectious gastric ulcer, rheumatic fever, etc., tonics, fresh air, supportive treatment for a few weeks are in order. Also, the question of latent general infection, as tuberculosis, syphilis, actinomycosis, etc., here enter into the indication or contraindication for the operation. On the other hand, the tonsils are often the direct cause of the lowered vitality. For instance, witness the anemic child with extensive adenitis, some persistent albuminurias, certain choreas, particularly those of Sydenham's type, certain cases of hyperthyroidism, some cases of heart complication following rheumatic fever. Here, having satisfied ourselves that the tonsils are truly a focus of infection retarding the convalescence, we must assume the risk of infection and remove them.

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The local tone of the tissues is affected by: 1. Previous local disease. 2. Type of operation.

The anatomy of the tonsil predisposes to infection; bacteria readily find lodgement in the crypts. The epithelium covering the surface and lining the crypts is porous. Normally there takes place a migration of leucocytes through this lining epithelium. Here, by means of the compression exerted upon the tonsil by the palatine muscles in the act of swallowing, these leucocytes, bacteria and a certain amount of desquamated epithelium are milked out of the tonsil.

In the submerged type of tonsil this natural drainage is interfered with by the overlying pillars; hence their liability to harbor trouble. Through the crypts, chronic hypertrophy and surface irregularities favor infection; resistance being diminished by catarrh and the frequent casting off of the epithelium. Inspection of the crypts, particularly those in the superior tonsillar fossa and beneath the plica triangularis, for signs of irritation and inflammation and especially redness of the mucous membranes will be found helpful. By culture, and this may well be done as a routine procedure, we are able to determine the number, type and virulence of the bacteria present.

The type of operation (a factor under control of the operator) brings up the controversy as to the relative merits of the sharp cut dissection, or the dull cut crushing operation. Suffice it to say that in our judgment, one should do the operation he knows best how to do; which he can perform with the minimum of trauma, i.e., avoidance of cutting or bruising the pillars, uvula, constrictor muscles or other adjacent tissues, and in a reasonable time. Personally, I find the Beck-Mueller snare or similar type of instrument applicable to some cases; the sharp dissection and snare operation to others. Just a word in regard to multiple operations as, for instance, submucous resection and tonsillectomy at one sitting. It is poor surgical practice. Every raw surface opened in the nose and throat predisposes to otitis media and other infections and the danger is proportionately increased the larger the operative area. Likewise, I think we have all been called upon to do a tonsillectomy or other nose and throat operation on a patient at the end of an anaesthetic given primarily for the performance of some general surgical or orthopedic procedure. This is unfair both to the patient and ourselves. Coming usually after a prolonged ether anaesthesia the patient has already experienced more or less shock and there is distinct danger of aspiration of blood and mucus into the trachea after the patient is put back to bed and while awakening from the profound narcosis. Then, too, we are usually handicapped by lack of teamwork from nurses and assistants who are usually still occupied with completing the toilet of a laparotomy wound or trimming a cast.

Infectious Complications: 1. Cervical adenitis and extensive cellulitis of the neck with more or less general sepsis are occasionally observed following tonsillectomy. Ballenger reports 2 such cases in 9000 tonsillectomies; Dickie 1 in 7000. We are of the opinion that this complication is more frequent than these series would seem to indicate. Stucky reported a case of cellulitis with facial paralysis lasting 5 weeks, following tonsillectomy. Operation in the presence of inflammation or too soon after an acute attack of tonsillitis may be responsible for some of these cases. In others, carious teeth may be the cause. The lymphatic defense is greatly weakened by the operation and the bloody wound offers a perfect culture medium for the ever present aerobic bacteria, usually the streptococcus or pneumococcus.

In this connection, I think we may mention what Vail(9) calls "the recurrent tonsil." "Occasionally upon examining with a cotton wound applicator the site from which the tonsil was removed, we find that the original cavity left has never healed or become obliterated. There is a sac containing broken down tissue, pus and granulations from which infection is being absorbed by the glands of the neck and thence into the general system. The cavity is bottle shaped with a narrow necklike entrance from the throat and an enlarged pouch extending down or up between the pillars." This condition is relieved by cleansing out the pocket and making a few applications of 10% silver nitrate.

2. Retropharyngeal abscess may be acute or chronic. That following tonsillectomy is, of course, acute. It is the more serious and is caused by one of the pyogenic microorganisms. Frank(4) recently reported a series of 74 cases of retropharyngeal abscess from all causes. In this series 50% were in children 6 months to 1 year of age. He suggests that in an illness of early childhood presenting difficulty in respiration or deglutition of acute or insidious onset, the retropharyngeal space should be investigated. If the tumefaction is high up difficulty of deglutition and a nasal intonation to the voice may be noted. If lower down, dyspnoea and a croupy cough present. There is also a variable degree of fever and leucocytosis. The acute abscess is best evacuated through the mouth with bistoury or scalpel guarded with gauze or adhesive, care being taken that the pus is not aspirated into the trachea. The chronic retropharyngeal abscess is usually associated with tuberculous caries.

3. Bronchopneumonia is a complication reported by Dickie and Raone Lubbe. The latter is of the opinion that the sudden onset of temperature noted in nearly all of these cases was in part due to surgical shock and not to operative septicemia. He urges more care in selection of the patient's position during operation, more consideration of the possibility of bronchial infection and general sepsis following tonsillectomy.

4. Lung Abscess: Lewis Fisher and A. J. Cohen of Philadelphia collected from the literature 71 cases of this complication and reported 5 of their own. Of these 76 cases 74 were operated upon under general anesthetic and all but 4 of these occurred in adults. Among the causes advanced for this complication are:

(1.) Type of anesthetic.

(2.) Aspiration of blood, mucus, or other detritus.

(3.) Infective emboli carried to the lung through the vascular and lymph channels.

(4.) Faulty technic, especially undue traumatism of site of operation. Other elements are, length of time and improper position of head of patient favoring aspiration.

(5.) The use of motor driven ether vaporizing apparatus.

(6.) Antecedent causes as chronic bronchitis, Vincent's angina, peritonsillar abscess, general debilitating conditions, as diabetes.

(7.) Over vigilant after treatment. The cause doubtless varies in different groups of operated cases. Clendening(11) reported a case occurring where motor driven anaesthesia apparatus was used. Personally, I have used a small Sorenson apparatus for 8 years and have never observed any untoward results. However, in view of this data, it would appear that tonsillectomy in the adult is much safer under local anaesthesia.

5. Tuberculosis: It is well known that we should not operate in the presence of active tuberculosis lest the reaction occasioned be too much for the patient's limited power of resistance.

It was the custom in certain army camps during the late World War when the medical service certified "no active tuberculosis present" to perform the operation as though no tuberculosis had existed. Just as the patient with a mitral heart lesion was treated as a normal individual so long as compensation existed. However, in our private practice we should be cautious in operating on the so called case of arrested tuberculosis. Particularly is this true where there has been or is laryngeal involvement. Fruedenthal(8) writing on laryngeal tuberculosis warns against indiscriminate removal of the tonsils in tuberculosis patients. He says, "In incipient cases and in young children where the tonsils may cause difficulty in respiration, they may be removed. But when this is not the case and the tonsils are only chronically affected with or without cheesy matter in their crypts, their removal is contraindicated." He cites three examples of patients who had been treated and had gotten along for some time. They were referred or inadvertently came into the hands of other physicians, who removed their tonsils.

The first, a woman with advanced tuberculosis, died within a few days of pulmonary hemorrhage. The second developed within 4 weeks, a new eruption of miliary tubercules in the pharynx and died a few months later. The third, a case of recurrent laryngitis and with a suspicious area in the left lung, appeared exactly 2 months after tonsillectomy with distinct signs of tuberculosis over both lungs. Her larynx showed interarytenoid edematous swelling and ulcer on the left cord. Four weeks later she showed a miliary eruption over the right tonsillar region. These conditions progressed rapidly and the patient died.

6. Acute suppurative otitis media is a complication mentioned in every reported series of tonsillectomies amounting to any considerable number and frequently mastoiditis results. The nearness of the pharyngeal opening of the eustachian tube to the operative field makes it easy for the purulent infection incident to healing, to spread up to the middle ear. In patients who have suffered from previous attacks of otitis media, the otitis is prone to recur. Avoidance of operation too soon after an acute otitis and avoidance of undue coughing, retching and gagging while recovering from the anesthetic might prevent some of these cases.

Case 1. R. D. S. Age 25. Farmer. Came to my office August 29th, 1914. He complained of supraorbital headaches, pain back of the eyes, sore throat for past six weeks and difficulty in opening the jaws widely. The eyes were negative. The tonsils were large and red and on pressure exuded some cheesy debris. Temperature and pulse normal. Tonsillectomy was advised and performed. September 15th patient returned, the throat had healed uneventfully, but he complained of a severe trifacial neuralgia. There were marked swelling of the deep cervical lymph glands, right side of neck, marked pain. Could open jaws only one fourth to one half inch. September 29th abscess anterior to right masseter muscle was opened and drained. Patient subsequently developed multiple abscesses of the face and neck, which were opened, curetted and drained. Smears showed the ray fungus or actinomycosis present. February 24th, 1915 patient developed a complicating streptococcus cellulitis of the face with temperature 104.5 degrees, pulse 114. Dressings of saturated solution magnesium sulphate were found helpful in treating the erysipelas. Potassium iodide 120 grains daily was our most effective agent in combating the ray fungus infection. 6/2/15 patient had completely recovered.

Case 2. J. W. M. presented himself at our clinic Camp Hospital No. 33, March, 1919. He gave a history of two or three periods of disability from acute follicular tonsillitis, the last previous attack something more than a week previously. There was a moderate redness of the mucous membranes of the throat. Pulse and temperature normal. Tonsillectomy was performed; convalescence in hospital uneventful, discharged to his outfit at the end of one week. Three weeks later patient presented himself complaining of sore throat. Examination showed diffuse redness and moderate swelling at right lateral pharyngeal wall just back of posterior pillar. Mass did not fluctuate and incision was negative except for rather free bleeding. After four days observation in hospital there had developed a well marked fluctuating mass on posterior pharyngeal wall. An area over the prominent part of the mass was infiltrated with procaine and a needle inserted revealed a retropharyngeal abscess which was evacuated by a free incision through the posterior pharyngeal wall.

Case 3. Baby W. age 8 months was seen at home December 5th, 1920. Respiration was embarassed, croupy cough. Temperature 102 per axilla. We obtained the history that one week previously a physician had removed the baby's adenoids with his finger. Inspection of the throat showed a bulging, fluctuating mass on the left posterior pharyngeal wall fairly low down. Mass was incised and divulsed with a hemostat, free pus obtained, baby immediately turned on face to avoid aspiration into trachea. Respiration was relieved immediately and the child made an uneventful recovery.

Case 4. (This case is reported not for any unusual features but because it is fairly typical of the otitic complication mentioned above.)

O. O. Age 6 came to the office July 20th, 1921. Mother stated that he was subject to earache and that he did not hear well. Child had an acute coryza. Examination showed both membranae tympani intact only slightly injected, no bulging or superior meatal sagging or other signs of mastoiditis, chronic lacunar tonsillitis and adenoids. Diagnosis otitis media, catarrhal, acute, secondary to the tonsils and adenoids. August 15th we saw the child again still complaining of not hearing well, but the acute symptoms noted at the previous visit had subsided. September 19th we performed tonsillectomy and adenectomy. The second and third days after operation child seemed to be convalescing normally, except that there was rather more exudate at the site from which the tonsil had been removed than usual. Temperature 100-102. September 23rd I was called because the child did not seem to be doing well. Temperature 104, pulse 100, respiration 24. Complained of earache. Right membrana tympani was injected and bulging. Paracentesis was done. There was free drainage of sero purulent discharge which continued for 4 or 5 days. Convalescence uneventful. Hearing has improved since operation.

Conclusions: Infectious complications of tonsillectomy are more common than is generally thought. This being the case, what can we do to diminish the frequency of their occurrence? We suggest the following:

1. Choose our cases with due consideration of the possibility of latent general infec-

tion, or if such infection is suspected with reference to the time of operating.

2. Thoroughly inspect ears, nose and throat of each patient before operating and if necessary hold under observation or treatment for a few days. This will preclude operating in the presence of acute inflammation or too soon after an acute attack of tonsillitis.

3. Avoid multiple operations on the nose and throat at one sitting, or at the end of a long anaesthetic given primarily for some other procedure.

4. In adults the operation is much safer under local anaesthesia. In those cases where general anaesthesia is chosen due care as to the position of the patient during operation should be taken. Do not unnecessarily prolong the anaesthetic by faulty teamwork, etc. Avoid undue exposure.

5. So perfect our technique as to reduce trauma to the minimum.

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THE FIELD OF OPERATION.*

R. W. Fouts, M. D., Falls City, Neb.

Perhaps you wonder that a title of this sort should be selected as the subject of a paper from the Chairman of the Medical Section, when the surgeon is more particularly interested in subjects of this nature, surgically speaking. Yet in its broader sense we as physicians and surgeons, individually and collectively, have a field of operation which is and should be as deserving of the most careful consideration and preparation as any surgical field ever invaded. After this preparation it should be guarded by the same zealous care employed by our present day surgeon in controlling his postoperative infections and complications. I refer to the community, state and nation in which we live.

As practitioners of the Aesculapian art our individual "Fields of Operation" are limited only by our individual influence and capabilities.

As the newly made "disciples" emerge from college and hospital, armed with proper authority to inflict themselves upon a suffering public, the novitiate presents a pathetic spectacle, indeed, to his elder brothers who have had their baptism of experience, and tasted the bitter dregs from the cup of seeming ingratitude, of perhaps a well meaning but misinformed and ignorant public.

Ingratitude—well what term other than ingratitude can properly express the attitude of the average layman toward the regularly trained, duly licensed physician and surgeon when compared with other cults, pathies and isms, that happen to infest his particular field of operation and masquerade under the title of doctor.

First of all he was no ordinary bit of clay, or at least possessed qualities not common to the rank and file, and must have been imbued with the spirit of "Service not Self" or he would never have cast his lot with a profession that requires years for preparation, only to find at the end of college and hospital career a depleted pocketbook, and a public which regards as his equal most any kind of charlatan who sees fit to prefix his name with the title "doctor" and use a liberal supply of printers' ink.

At first thought you may think this statement relative to the public attitude exaggerated but I have to remind you of some of the comparatively recent acts of our own legislature as well as those of other states in making a doctor of medicine of the osteopath, and extending official recognition to the chiropractor, and to personally observe the standing, social, financial and otherwise, of this last class of parasites, in communities in which they are plying their nefarious, yet nevertheless legalized practice.

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*Address of Chairman of Medical Section, Nebraska State Medical Association, April, 24-27, 1922.

Here I would like to pause long enough to give "the devil" his due, namely, the osteopath. I have known a few of this "tribe" who were both "gentleman and scholar" who recognized their limitations, and in great measure confined their efforts to the scope of their training.

But what of the napropath, chiropractor, science healer, and suggestive therapeutist?

Of these we have a chiro—who for the past eight or nine months has been holding a reading glass over the second, third and fourth lumbar vertebrae in our daily papers each week, demonstrating beyond the question of a doubt, to the gullible public, that disease is the result of impinged nerves, due to misaligned vertebrae, thereby blocking the life giving nerve impulses. He also admits his ability to right these maladies, and with his free spinal analysis now has a lucrative practice of goiters, diabetics, nephritics, cardiacs and epileptics, of which he knows nothing except to pummel their back bone and collect two dollars per, or six for ten, with further reductions for greater number of adjustments. When the patient's pocketbook is properly adjusted he finds his way to a physician who later signs the death certificate and all is well. The "quacktic" could have properly signed the death certificate but his victim usually recognizes he has been duped, or is told his case has progressed too far for chiropractic to yield results, and the "adjustor" is thus saved the unpleasant notoriety incident to signing a death certificate. His advertisements also carry statements of not only hundreds, but thousands of cases of "flu" treated by chiropractic methods with less than one death per thousand. And this fellow—for all practical purposes, is on a level with the medical profession and is so recognized by the laws of our state.

We are "blessed" also with a suggestive therapeutist who calls himself "professor" but is referred to by many of the laity as "doctor." He has been in operation in our locality for some five or six years, and has gradually extended his lines of treatment from suggestive therapeutics to now include baths of various sorts, massage of all description, violet ray and other electrical treatment. He, like the chiro, has built up a business, through the newspapers in this short time, the net income of which is equal to, and perhaps exceeds that of the largest net income of any physician in our community. He, likewise, presumes to diagnose and treat any and all disease to which the human body is heir. Recently we observed a case of undoubted toxic thyroid, which he had been treating every day, except two, for thirty-two successive days. His treatment consisted in applying a high frequency electrode to the spine for a few minutes each day, for which he was paid two dollars per. The high frequency apparatus employed can be purchased for $17.50, thus showing a good return on the investment. So, we remark, we can but feel sorry in a way for new fellows coming into the profession when we anticipate the jolt they are to receive when they awaken to conditions of this sort as they now exist in practically every community.

A discussion of this sort would be worthless without some attempt at a solution for the problem, granting that it is a problem, as we believe it is, for solution.

First, why do we have these various "joint crackers" and "healers" and who is responsible for their existence. The men engaging in this business do not have the time nor inclination to put in five or six years of hard work to prepare themselves as regular physicians. But few of them have the necessary preliminary education for admittance to our medical colleges, so they choose the short cut to the green fields beyond, via B. J. Palmer route, Davenport, Iowa or some other diploma mill, of which there are many. And why not? He has acquired the title doctor, which is about all the public demands, and is out doing a lucrative business, unhampered and unmolested, e'er the medical student has fairly started on his educational career. If it required as much time, money and hard work to become a chiro as it does for the "doctor" there would be none of the former.

Granting we are right in the premises as to why anyone should choose a vocation of this sort, who is responsible for their present status and conditions as they now exist?

In answer let me ask who is responsible for our present day knowledge of anatomy, pathology, materia medica and therapeutics? Who is responsible for our present day boards of health, with their rules and regulations pertaining to sanitation and hygiene and prevention and control of disease?

What lawmaker other than a medical man has ever written a single line of constructive legislation pertaining to the health of a commonwealth without the advice of medical men? Nothing of this sort has ever been attempted, much less accomplished, without the brains of the medical profession. The medical profession must accept responsibility for these things, and while there have been errors of commission that were later righted in the development of our present system, our more recent errors are those of omission. Things we have failed to do that we should have done are responsible for the official recognition and legalizing of the rapidly increasing number of these would be purveyors of healing.

I say the medical profession is responsible, for the reason that in times past they have given to the world all that is known pertaining to health problems, and in many instances have been compelled to take a decided stand and fight for a cause so far in advance of accepted ideas at the time that people were unable to realize the advantages to be received later. For example we have the antivivisectionists, the antivaccinationists, and the trials of our early anatomists.

In the light of these experiences the people have come to regard the medical profession as guardian of the public health. And may it be said, we have made good in most instances but have certainly fallen down in permitting the licensure and perpetuation of these various cults. It can almost be classed as a betrayal of public confidence, on the part of one of the greatest of professions, that we have made so little effort in their behalf when questions of this kind were to be decided. It is true that we have always had a few eleventh hour men in the legislative halls when these bills have come up and they have given good account of themselves, many times securing modifications of some and defeating other proposed legislation. But they were only three or four, appearing at a late hour, while the opposition would be represented by many times this number with many of the lawmakers acquainted with the purposes and provisions of the proposed bill, and their support pledged prior to their election, with the result that laws favoring the cause of clandestine medicine continue to be written in our statutes.

I charge we have been derelict and negligent in not keeping the public informed on matters of this sort. That we have been content in allowing them to adhere somewhat to the traditional idea of the mystical, or mysterious part of medicine, that prompts men to invest in a bottle of "rattlesnake oil" that will cure anything from tight boots to toothache, simply because the formula was discovered by an old Indian chief, at a time when civilization was in its infancy.

That we are leaving the education of the public along medical lines to the advertising charlatan and patent medicine interests. A very unwise and dangerous thing to do.

That in our zeal to develop higher standards of medical education, and equip ourselves to better serve humanity we have overlooked the fact that the back door was left open and these various types of marauders have entered and preempted the place we were preparing to fill.

And now that a condition of this sort exists, created I believe because of the fact that we have not been on the job, are we to stand idly by, gracefully folding our hands and accepting the inevitable, which in time will mean a public health policy, dictated in a great measure by the same class of collusionists that have secured the passage of some of the legislation referred to, or shall we fulfill the obligation we owe to humanity, by instituting some sort of a publicity bureau and educational campaign, and securing the enactment of laws guaranteeing to them the protection to which they are entitled?

We as a profession are responsible for the asepsis of the field in which we operate. Through our inactivity and seeming indifference this field is being contaminated more and more from year to year, until now it is fairly teeming with nondescript parasites of steadily increasing variety.

Is it not time for the advent of some modern Lister, with a parasiticide sufficiently potent to properly prepare "The Field of Operation" and make the world a safer place in which to live.

THE SIMULATION OF ECTOPIC PREGNANCY.*

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Remarkable paralleling of the symptoms of ectopic gestation is occasionally encountered in certain pathological processes, and, so close is this simulation in some instances, that the diagnosis of extrauterine pregnancy is reasonably justified. Further justification of this error lies in the fact that actual tubal pregnancy, especially when its manifestations are atpyical, is not infrequently wrongly diagnosed.

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*Read before the Omaha-Douglas County Medical Society, Nov. 22, 1921.

Acute abdominal pain, possibly accompanied by shock of some degree; bloody vaginal discharge after missing a menstrual period; slight elevation in temperature; the finding of a tender mass to one side of the uterus; and, finally, exacerbations or recurrence of the pain of a colicky nature accompanied with mild febrile reaction, are all symptoms generally accepted as pathognomonic of ectopic gestation. Additional facts may be presented in a given case and among them, perhaps, a history of previous inflammatory disturbance in the pelvis, a prolonged period of sterility, and even some of the symptoms and findings associated with early pregnancy.

Any proportion of the above symptoms, or the complex in its entirety, may, conceivably be caused by pathology other than ectopic gestation. The one symptom, namely, a missed menstrual period, while not an essential in ectopic gestation, nevertheless proves to be a most disconcerting factor from the diagnostic standpoint and one which requires explanation in the absence of actual pregnancy. Frequently the explanation for this departure from normal periodicity will be found as a manifestation of perverted function of an ovary, or ovaries, diseased through intrinsic processes or influenced by neighboring inflammatory disturbances. The remainder of the symptomatology simulative of ectopic pregnancy, and acute features in particular, may be supplied by a variety of pelvic disturbances characterized by abrupt onset, among which may be mentioned acute inflammation, or exacerbations in a chronic process, and the accidents of hemorrhage, rupture and torsion occurring in ovarian cysts or other pedunculated enlargements in the pelvis.

The following classification of pathologic states is offered, together with a brief and, of necessity, speculative, explanation of the modus operandi of the several conditions producing symptoms closely simulating those found in the more or less typical instances of ectopic gestation.

A. Ovarian conditions.

(1) Lutein Cysts. This group comprises, first, the true corpus luteum cyst or persistent corpus luteum, and, secondly, the cyst of simpler structure lined with atypical lutein cells which is thought to originate in atretic follicles and is commonly referred to as lutein cyst. Either type rarely attains a size larger than a goose-egg. The cysts, as shown by Halban (1) and later by Rubin (2) give rise to menstrual disturbances characterized by altered periodicity, marked variation in the amount and duration of flow, and exaggeration of the usual menstrual pain. It is reasonable to assume that these disturbances are the result of continued activity of lutein cells that have persisted abnormally, and exert chiefly an inhibitory influence on the subsequent development of the so-called corpus luteum of menstruation and thus resulting in delay or other irregularity of that function. Excessive congestion, incident to the presence of the cyst and prolapsed as it usually is, or exaggerated by neighboring inflammatory processes, or a simple concomitant of menstruation, is frequently the actuating factor in the abrupt onset and stormy character of the disturbance.

(2) Simple Cysts. Cysts of this type differ from the foregoing in the absence of lutein substance and consequently do not feature basically in the phenomena of menstruation. Nevertheless these cysts can and do exert an altering influence on this function especially in augmenting the amount and duration of the flow, although rarely disturbing periodicity. In other respects these cysts may be symptomless unless subjected to increase in tension as the result of menstrual congestion or of slight torsion to which I believe these enlarged ovaries are more liable than is commonly supposed. Intracystic hemorrhage and rupture have in most instances some degree of torsion as a causal factor, and it is one of these accidents which coincident with menstruation contributes the acute manifestations furthering the simulation of ectopic gestation.

(3) Oophoritis and perioophoritis. In this category may be placed all of the pathological conditions of the ovary resulting from inflammatory states which may affect the ovary exclusively, but are more commonly found associated with tubal involvement. In such instances, due to inflammatory thickening of the capsule, the ovary is frequently enlarged as the result of the accumulation of atretic follicles. Occasionally they contain clotted or fluid blood and give rise to "blood-cysts" and hemorrhagic oophoritis, as seen

in ovaries bound down with extensive periovarian adhesions. These "blood-cysts" may be true lutein cysts, but usually are simple follicular cysts into which hemorrhage has occurred as the result of rupture of an adjacent follicle, or from bleeding from its own walls as the result of increased tension in the ovary during the height of menstrual congestion, which exaggerates temporarily the existing tension due to neighboring inflammatory conditions. Menstrual irregularity, pain and variation in the amount and duration of the flow are frequent disturbances in this condition, and often accompanied by elevation of temperature and leukocytosis.

B. Tubal pathology.

(1) Acute salpingitis. As this condition is usually characterized by abrupt onset and not infrequently associated with menstruation, the diagnosis of ectopic pregnancy is occasionally a reasonable one especially if the temperature and leukocytosis is not high.

(2) Exacerbation in chronic salpingo-oophoritis. Not uncommonly in this condition the onset is abrupt and accompanied by bleeding of an irregular character and a low temperature hardly proportionate to the pain and the pelvic findings. Menstrual irregularity, which is an almost invariable feature, is largely attributable to the associated ovarian changes which have been considered above; while excessive pelvic congestion, resulting from the lighting up of an inflammatory process, is accountable for the acute symptoms.

(3) Hydrosalpinx. So frequently this condition is associated with marked change in the ovary that the perverted function of the latter is the fundamental factor in the disturbances produced. However, acute symptoms may be supplied by an inflammatory flare-up in the affected tube, or by torsion or hemorrhage into the tube which may be caused by increased vascular tension, thus forming a hematosalpinx.

C. Uterine conditions. Under this heading may be mentioned certain complications of intrauterine pregnancy, such as, simple and missed abortion, incarcerated retrodisplacement, developmental anomalies of the uterus, and hydatidiform mole.

D. Extragenital Conditions. It is obvious that the coincidence of almost any acute abdominal disturbance, particularly if one sided, with menstruation might, on occasion, suggest ectopic pregnancy.

The following cases have been selected as examples of some of the foregoing conditions which gave rise to symptoms which, in certain instances warranted the diagnosis of ectopic gestation, and in others forced its serious consideration.

Case (1). Hemorrhage into an ovarian cyst.

Mrs. D., aged 28. Para.2 Menstruation one week overdue although previously very regular. The uterus was normal in size, position, and consistency. The left ovary twice its normal size, moderately tender and freely movable. Three days later, after taking some "pills" procured by her husband, she began to have severe abdominal pain, diarrhoea, profuse vaginal bleeding and passed clots and a piece of "tissue." This latter proved to be an almost intact triangular cast of the endometrium but microscopically no trace of chorionic villi was found, nor evidence of decidual reaction. Temperature 101°, pulse 90. Nauseated, but had not vomited. Complains of severe cramping pains in the lower abdomen, especially on the left side, where tenderness and rigidity are most pronounced. No fluid or mass is demonstrable. The uterus was found in the same condition as previously noted, except for slight softening of the cervix and patulous os. To the left of the uterus was an exceedingly tender, globular, and cystic mass the size of a goose-egg. There was no bulging of the cul-de-sac. A leukocytosis of 18000 was found, with 82% polynuclears. Tentative diagnoses (in the order of liklihood) (1) torsion of a cystic ovary. (2) hemorrhage into an ovarian cyst or (3) tubal pregnancy, were made. At operation a tense, thin-walled, purplish-black cyst of the left ovary was found. This was the size of a lemon and contained fluid and clotted blood. In the right ovary was a fully developed corpus luteum. Subsequent menstruation normal, and 18 months later passed through a pregnancy uneventfully.

In this case the perverting influence of a lutein cyst (for such it proved to be) is manifested in the delay of menstruation. The sudden onset of pain can be ascribed to the hemorrhage into the cyst. This, in turn, could be reasonably accounted for by slight torsion of the ovary produced by violent peristalsis which followed the taking of an oxytoxic. The passage of the endometrial cast, which is a frequent occurrence in ectopic gestation after rupture or operation, served as one of the most confusing incidents in this instance, and cannot be explained on any other basis than that it was the result of, or a part of, the extremely violent inauguration of menstruation caused by the oxytoxic agent.

Case (2). Intra uterine pregnancy and ovarian cyst.

Miss E. H. Aged 25. Had missed two periods and regarded herself pregnant. In the hope of producing an abortion she had taken a turpentine douche 4 days before I was called to see her. During the past three days she has had frequent sharp pains in the lower left side accompanied by repeated vomiting. There had been no bleeding. Two years ago she was operated upon and told that a tube, an ovary and the appendix had been removed.

On examination there was found marked tenderness and rigidity in the left lower quadrant of the abdomen, a softened and slightly enlarged uterus, and an exceedingly tender, globular and cystic mass in the left side of the pelvis. Temperature 100.4°, pulse 110. In view of a history suggesting previous inflammatory involvement of the tube and ovaries and the findings on examination, the diagnosis of unruptured tubal pregnancy was made with considerable confidence. As there was no change in the general condition or pelvic findings in the next two days a laparotomy was performed. The uterus in appearance and size was that of a two months pregnancy. The left ovary was represented by a tense, thin-walled cyst the size of a small orange, its surface vessels being markedly congested. In spite of her former operative history, none of the pelvic viscera nor the appendix were missing. Both tubes and the right ovary were normal, the latter containing a large corpus luteum. Left ovariectomy and appendectomy performed. Although the uterus was not manipulated, a two months foetus with membranes intact was passed two days later.

In this instance the congestion produced by the turpentine douche serves as the probable explanation of the acute disturbance in increasing the vascular tension in a simple ovarian cyst which had heretofore been symptomless. The acute onset, the missed periods, and the findings strongly suggestive of pregnancy, together with a slight febrile reaction, all fitted in nicely with the not infrequent manifestations of tubal pregnancy.

Case (3). Tubo-ovarian cyst with acute exacerbation in a chronic pelvic inflammatory process.

Mrs. Y. Aged 41. Sudden severe pain in the lower right abdomen accompanied by profuse vaginal bleeding. At onset fainted and vomited several times. A long cross country auto ride seems to have been the exciting factor in the disturbance. Has had 4 children, the last born 21 years ago. No history of puerperal disturbance and menstruation has always been regular and normal. Examination showed definite tenderness and rigidity of the lower abdomen, but was especially marked on the right side. The uterus was found in mid-position, slightly enlarged and tender. To the right was an indefinite and exceedingly tender mass which extended well down into the cul-de-sac, while on the left some tenderness was elicited but a mass was not palpable. Temperature 101°, pulse 98, and a leukocytosis of 13,200. Pain, temperature and bleeding diminshed somewhat during the following two days, with, however, persistence of the nausea. In the complete absence of a history of previous pelvic disturbance, the abrupt onset of the present trouble with bleeding and syncope, the diagnosis of ruptured tubal pregnancy was made with considerable assurance. At operation, however, a large tubo-ovarian cyst with a small extratubal abscess, walled off by dense intestinal and omental adhesions was found on the right side, while on the left was a small hydrosalpinx and cystic ovary. The long period of sterility, the absolute freedom from pelvic symptoms which is remarkable in the presence of such extensive pathology, the abrupt and severe onset of pain accompanied by syncope, gastrointestinal disturbance, moderate temperature, and the profuse bleeding, together with such positive pelvic findings, certainly makes the diagnosis of ectopic gestation in this case a logical one.

Case (4). Hemorrhagic oophoritis and bilateral hydrosalpingitis.

Mrs. F. Aged 34. Para. 2. Three days previously was taken suddenly with a severe colicky pain in the right lower abdomen and began to flow profusely. Nausea and vertigo accompanied the disturbance. Menstruation has been slightly irregular and accompanied by moderate discomfort since the birth of her last child six years ago. The last period was three weeks ago and did not differ materially from previous ones. At present the flow has practically ceased although the pain in the right lower quadrant persists intermittently. Examination discloses marked pallor of facies, exquisite tenderness and considerable resistance in the lower abdomen. The uterus cannot be definitely outlined because of the extreme rigidity of the abdominal muscles. To the right of the uterus is an indefinite, fixed, suggestively cystic mass which extends into the cul-de-sac and is extremely sensitive. In the left side less resistance is met with, and though some tenderness is elicited, no mass is palpable. Temperature 100.4°, pulse 96. White blood count 12,600, with 80% polynuclears. Hemoglobin 75%. While under observation during the next two days the bleeding practically ceased, with, however, persistence of colicky pains in the right side and continued temperature. There was no demonstrable change in the pelvic findings. The preoperative diagnosis was chronic salpingo-oophoritis although ectopic gestation was considered a likely possibility. At operation a large hydrosalpinx was found on the right side and an enlarged cystic ovary containing a considerable blood clot. Both structures were densely adherent. On the left side a small hydrosalpinx and slightly cystic ovary were found. Subsequent microscopic examination of the right ovary showed hemorrhage into a cyst cavity and extensive infiltration of the stroma, thus constituting the typical picture of hemorrhagic oophoritis. In this instance menstrual perversion is to be explained as the result of the influence of cystic change in the ovary while the pain, temperature, and other acute symptoms are to be ascribed to the intracystic and interstitial hemorrhage.

Case (5). Torsion of a hydrosalpinx. Corpus luteum cyst.

Mrs. E. Aged 32. When one week overdue as regards menstruation, she suddenly began to have severe pains in the lower abdomen and began to flow scantily. Was nauseated and dizzy. Pain diminished in a few hours but a diffuse abdominal soreness persisted for several days while the bloody discharge practically ceased. Ten days after the first attack a second occurred with intense pain requiring morphine for relief. Bleeding recurred, and this time was very profuse. Fainting occurred twice shortly after the onset. Marked abdominal tenderness with rigidity was found throughout the hypogastrium but especially just to the left of the mid-line. Both breasts, though not enlarged were rather sensitive and from each a turbid watery secretion was readily expressed. Pelvic examination showed the uterus to be normal in size and position but seemed unusually sensitive. The right ovary was twice its normal size but restricted in movability and moderately tender. In the region of the left cornu was an extremely tender mass the size and character of which could not be definitely determined because of the resistance of the abdominal muscles. Cervix was suggestively softened but the os was not patulous. Ten years ago this patient had been operated on for some pelvic inflammatory disturbance which followed an abortion, her only pregnancy. Menstruation since operation has been slightly irregular but normal in other respects. Diagnosis of ectopic pregnancy was made with all confidence and she was operated on at once. The uterus was normal, but the right tube and the left ovary were missing. The left tube was represented by a non-adherent hydrosalpinx the outer end of which was turned back upon itself and lay slightly posterior to the fundus and, in addition, had undergone a torsion of at least 180 degrees. The surface vessels of the distal end of the tube were engorged, the sac tense and purplish. The right ovary, double its normal size, was densely buried in adhesions and appeared to be between the layers of the broad ligament. It was reached by splitting the anterior layer of the ligament and a corpus luteum cyst the size of a walnut was found which contained clotted blood.

Two factors, in this instance, were probably operative. In the first place the corpus luteum cyst may have featured in its not unusual capacity in inhibiting or delaying menstruation. Add to this the acute symptoms associated with torsion in an non-adherent hydrosalpinx which probably contributed in the inauguration and excessiveness of the flow. The first and milder attack presumably was a temporary twisting of the hydrosalpinx.

In this case the history of previous inflammatory trouble, the long period of sterility, the abrupt and stormy onset after a week's delay in menstruation. the repitition of attacks, together with the pelvic findings and the presence of breast secretion, certainly argued strongly for the diagnosis of ectopic gestation.

Case (6). Hematosalpinx and ovarian cyst.

Mrs. P. Aged 41. Two days ago suddenly began to have severe colicky pains in the right lower abdomen accompanied by profuse flow. The onset of this disturbance corresponded with the expected menstrual period. Menstruation previously symptomless. Has not been pregnant since a miscarriage which occurred ten years ago. During the past two days colicky pains of considerable severity have recurred intermittently with a continuance of excessive bleeding, persistent nausea and an occasional mild chill. Tenderness and rigidity of the lower abdomen particularly on the right side. Pelvic examination unsatisfactory because of the extreme obesity of the patient. The cervix, however, is small and of normal consistency and in the right side marked tenderness is elicited although a mass is not definitely palpable. Temperature 99.6°, pulse 100. White blood count 12,000.

Although conclusive findings were lacking, the diagnosis of either early abortion or ectopic gestation was suggested. Exploratory curettage showed the uterus to be small and its cavity empty. In the anaesthetized state an indefinite mass was found on each side of the pelvis and laparotomy was then performed. The uterus was small and normal, the right tube an adherent hematosalpinx, left tube normal. The left ovary was represented by a cyst the size of an apple and moderately adherent, while the right ovary was only a small sclerotic mass. The hematosalpinx contained partially clotted blood but microscopically no chorionic tissue. The abrupt onset with its mild febrile reaction may reasonably be ascribed to hemorrhage into a hydrosalpinx which in turn was probably caused by congestion incident to menstruation. Just what part, if any, the ovarian cyst contributed to the disturbance is problematical. The long period of sterility, the abrupt onset of pain and profuse flow, slight temperature and moderate leukocytosis, suggested the possibility of ectopic gestation in this case.

Case (7). Missed abortion.

Mrs. J. aged 26. Complains of crampy pains in the lower abdomen, nausea and repeated vomiting, and nervous irritability since missing menstruation two weeks ago. Has had a slight temperature and mild rigors. No bleeding has occurred. Previous menstrual history negative. Extreme sensitiveness and some spasm of muscles is found in the left lower quadrant of the abdomen. On pelvic examination the cervix is found to be small and hard, and a very tender globular mass is felt in the left side. The uterus can not be outlined. Temperature 100.6°, pulse 90. The rather unusual leukocyte count of 17,600 with but 76% polynuclears was found. Tentative diagnosis tubal pregnancy (unruptured). Under anaesthesia, however, the mass in the left side of the pelvis was found to be the enlarged fundus of the uterus which could readily be returned to its normal position. A slight chocolate-colored discharge issued from the cervix which was unusually firm and the os very small. The possibility of retention of menstrual blood or some disturbance of early uterine pregnancy, together with the pain and febrile reaction, offered justification for dilatation and exploration of the uterine cavity. Great difficulty was encountered in getting even a small dilator passed the internal os but following its withdrawal there was a gush of a considerable thin, chocolate-colored fluid which was presumed to be old blood. When thorough dilation was accomplished exploratory curettage brought away a few fragments only of a tissue which microscopically showed degenerating chorionic villi. Early death and absorbtion of the embryo with the retention of the decidua favored by a stenotic cervix resulted in pain and toxic manifestations.

Case (8). Pregnancy in a bi-cornate uterus.

Mrs. A. Aged 27. Missed a menstrual period a month ago and since then has vomited persistently. Two weeks ago began to flow, accompanied with mild colicky pains, and this has so continued. She has six children, the last born six years ago. Appears rather anemic. Moderate tenderness in the hypogastrium slightly to the left of the mid-line. Cervix is firm and the uterus slightly enlarged. Extending laterally from the left cornu is a fusiform, somewhat elastic mass, which is moderately tender. The vaginal walls and cervix are definitely cyanotic. Temperature 101°, pulse 116. Diagnosis—unruptured tubal or interstitial pregnancy. Preliminary curettage removed a 4 weeks' embryo and membranes from the left horn of a septate uterus. The septum was easily demonstrable and extended down to the level of the internal os. The interesting feature in this case is that this woman had given birth to six children uneventfully. The erroneous diagnosis was based on the finding of a presumably extrauterine mass, bleeding, symptoms of pregnancy, temperature and pulse reactions.

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PUERPERAL SEPSIS.*

Richard T. Van Metre, M. D., Fremont, Neb.

The Journal of the American Medical Association during the years 1920 and 1921 only twice had articles on obstetrical subjects in first place or lead articles. In fact all the journals give comparatively little space to most topics bearing upon obstetrics, if perhaps we except eclampsia. The journals devoted exclusively to obstetrics and gynecology take up most of their space with the rarer complications encountered by those practicing this art.

Has this any significance? When we find that the mortality rate from childbirth is no lower than 20 years ago, it leads me to ask: Is this the reason? Has the editor of our official journal and have other editors failed to receive articles dealing with obstetrical subjects or have these articles been deemed of so little importance that they have been sidetracked? With so little headway being made in the United States in lowering the mortality rate and with the ever increasing morbidity rate it might be suggested that more articles be published in hope of bettering conditions.

Dr. John Osborn Polak, Brooklyn, speaking on "The Defects in our Obstetric Teaching," says:

"Advances in medicine and surgery, in better diagnosis, preventive medicine and improved surgical technic, have reduced the mortality of typhoid fever, diphtheria, pneumonia, intestinal perforations, appendicitis, cholecystitis and numberless other acute and subacute conditions to an almost irreducible minimum. Contrast this with the fact that the number of women who die from childbirth is increasing from year to year and that puerperal septicemia seems to be the only form of wound infection the occurrence of which has remained totally unaffected in the past decade by the advancement of scientific knowledge. In New York City on the island of Manhattan, last year one mother died for every 205 babies born, while in the greater city of New York, one woman in every 250 deliveries died from infection or as an indirect result of it. The mortality from puerperal infection remains practically the same today as it was in 1900; and the mortality from childbirth is second only to that from tuberculosis in women of reproductive age, and between 40 and 50 per cent of these deaths are due to sepsis."

WHAT WILL WE CALL SEPSIS?

It is nothing more nor less than ordinary wound infection, not differing in causes or essential nature from infections as found in general surgery. However, it is modified by location and circumstances, making its diagnosis more difficult and its treatment quite different.

Let us, for the time, consider every rise in temperature to 100.4 degrees F., or a pulse of 80 to 90, 48 hours post-partum, even with no increase in temperature, as evidence of infection until by intelligent physical examination it is conclusively proven the cause is outside the genital tract. If we as physicians take this stand (to ourselves at least) and admit the presence of sepsis when it is present, a wonderful gain will have been made in the practice of obstetrics.

REASONS FOR SEPSIS.

Here we will not take into consideration the bacteriology and pathology leaving that to some one more capable. The reasons may be traced to us as physicians and in a small measure at least to the public.

(1) Our failure to give full and explicit directions to pregnant women. Prenatal instructions: Diet, fresh air, the skin, focal infections, bowels, kidneys, drinking water, clothing, sexual life, bathing, self examinations, etc.

(2) Ignoring physiology of labor. The normal physiologic processes by which na-

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*Read before the Elkhorn Valley Medical Society, Fremont, Feb. 19, 1922.

ture protects against infections are: Secretions are antagonistic to pathogenic bacteria; the tenacious mucous plug in the cervix, at least until labor begins, acts as natural barrier to infection; membranes always a protection of invasion from below; on escape of liquor amnii parts are washed from above; passage of child literally scrubs surface of birth canal; on escape of the foetus the hind waters again wash canal; the expulsion of placenta turning inside out tends to leave everything clean behind it; further protection is afforded by the antibactericidal action of the lochia.

(3) Poor technic. Or should we say no technic? How many have an orderly, well thought out plan for use in their confinement work? How would the general and special surgeons "get by" if they were as slipshod as many physicians practicing obstetrics? Our conclusion must be that the average aseptic technic is poor or nil.

For example: In delivery of the child the right hand is usually soiled by contact with the anus. Instead of trusting to an antiseptic solution, put on a clean glove. It is not the normal case entirely left to nature that commonly "goes septic", neither is it that where artificial delivery has been effected with the full precautions of modern surgery, but it is that in which a certain amount of interference has been carelessly and unsurgically practiced, and usually with insufficient trained assistance.

(4) Too frequent vaginal examinations carrying infection in from below. If this one procedure were universally discontinued and routine rectal examination substituted, we would find a marked lowering of the incident of infection. You will be surprised at how well you can determine the progress of labor, the dilatation of the cervix, presentation, position, prolapsed cord and even placenta previa by rectal examination. By this means no contamination has occurred if Cesarean section, forceps or other operation may be necessary. If you fail or are not satisfied, make vaginal examination as last resort.

(5) Indiscriminate and unnecessary interference, Potter version; DeLee prophylactic forceps; use of bags; episotomy and Cesarean section, all to shorten labor. Just bear in mind that malpositions and obstructions are not common, neither are the mortal accidents of labor, compared to the incidence of infection.

(6) Nursing, unscientific and untrained. How often have we had the nurse bring in a bowl of sterile water and try it with her bare hand to see whether or not it was too hot? And how often do you have sterile basins in the home? Let's give the nurse better instructions and not be so often embarrassed. We might add here that attention after urination and defecation should be given with the same care and precautions as in a major surgical dressing.

Now for the public. The public has failed to realize the necessity of special surroundings and care for the parturient woman. Systematic education similar to that used in combating tuberculosis and cancer would accomplish much in remedying the shortage of maternity hospitals throughout the country. Each county should have at least one hospital for the care of its women during confinement.

HOW TO PREVENT.

The prevention of sepsis is by far the most important problem in obstetrics. If death were the only danger the outlook would not be so bad but with three recovering to one dying and all three becoming potential invalids the outlook is needed bad. It is a matter of prevention. By aiming to correct our faulty technique, giving more attention and detailed care to the study of the reasons for sepsis and more thought and planning on how to avoid it we can prevent infections. Let's have more papers and discussions on this subject. A condition that the general practitioner meets frequently. A subject upon which he can well spend time and study. By concerted action, a standardization of technic, a campaign for enlightening the public so they will demand proper hospitalization and by proper prenatal instructions the good old U. S. A. will not stand fourteenth in a list of sixteen nations in mortality attending child birth.

"That physician best serves his clientele and his community who prevents disease rather than cures it".

ANTHRAX WITH REPORT OF A CASE.*

M. G. Wohl, M. D., and J. E. Pulver, M. D., Omaha, Neb.

This case is reported for two reasons: first, because of the rarity of this condition; and second, because of the importance of its early diagnosis.

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*Presented before the Douglas County Medical Society, Nov. 8, 1921.

Mr. R. Salesman, 35 years of age, white. Family history negative so far as present illness is concerned.

Present illness: Patient had always been well until about four days previous to applying for medical aid. At this time he noticed a small pimple on the right side of the neck that followed shaving. This gradually enlarged until it became the size of a quarter. There was no pain except upon deep pressure.

The center of the lesion assumed a dark purple color with a slight portion of its center being raised; from which a moderate amount of serous fluid escaped.

He complained at this time of headache and loss of appetite. His temperature was 101°, pulse 112. Twenty-four hours later the lesion increased to the size of a silver dollar; had a blackish appearance in the center with vesicles and congestion surrounding it. The lymph vessels and neighboring glands became inflamed. The tissue under the chin was markedly edematous. The lesion was cut into and a sero-sanguinous fluid obtained.

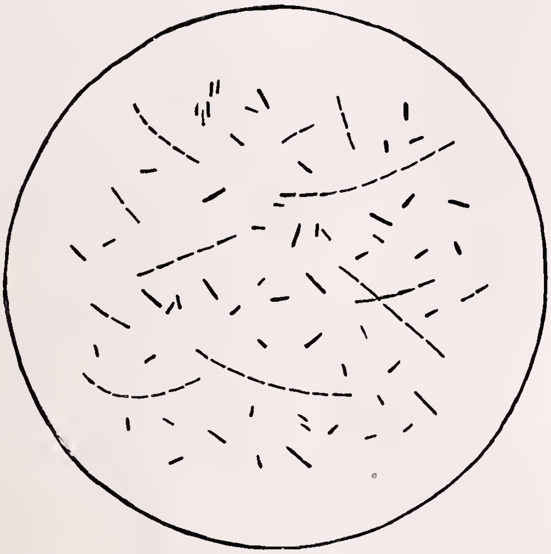

FIG. 1—Drawing of smear preparation from 24 hour glucose agar culture.

A preliminary diagnosis of anthrax was made.

The entire outer border of the lesion was injected with 5% carbolic acid and then dressed with hot saturated A. B. C. solution. This was repeated on the second and third days.

Bacteriological findings: One cc. of serum was obtained from the lesion with a small hypodermatic syringe, care being taken not to manipulate the lesion roughly. This is important, since rough manipulation may favor the entrance of bacilli into the circulation.

Cover-glass preparations were made; stained with Gram's stain and methylene blue. Cultures were made on glucose agar, blood agar, and bouillon. Direct smears revealed a rod-shaped organism of uniform breadth, varying in length from two to four microns; Gram positive. The colonies upon solid media had a peculiar Medusa head appearance. Smears from the latter showed bacilli in chain like arrangements, bacilli had square cut ends. (Figure 1) Bouillon cultures grown at a temperature of 30 degrees C. showed spores of oval shape. A guinea pig inoculated subcutaneously with one cc. of the bouillon culture died at the end of thirty-six hours. At the site of inoculation there was an edematous gelatinous exudate. The blood from the guinea pig was of black color and cultures from the latter revealed bacilli of above description. The diagnosis of anthrax was definitely established.

The patient was given intramuscular injections of antianthrax serum: 10 cc. on six successive times at four hour intervals. The serum was also injected locally around the lesion. Three days after the injection of the serum, the lesion had taken a decided turn for the better. The edema around the chin subsided and the eschar began to slough away. At the end of three weeks, the eschar was removed surgically, and the lesion healed without any complications. The patient made a complete recovery.

Mode of infection: Anthrax infection in human beings occurs, as a rule, on the arms or back, as the result of abrasions while unloading hides or skins of animals that have died of the disease. People may also become infected by inhaling, or swallowing the spores while handling material such as hair or wool that comes from infected animals. The infection in our patient, occurred from the use of a new shaving brush. Cultures were made from the hair of the shaving brush, and bacilli of the above morphological and biological characteristics were found.

Anthrax infection by means of shaving brushes is commanding medical attention. At Bellevue Hospital, New York City, between October 1915 and November 1921, thirty-six cases of cutaneous anthrax were admitted. Out of this number, ten, or twenty-eight per cent followed the use of shaving brushes, (American Medical Association, December 31, 1921.) During a period of one year and nine months, thirty-four cases were reported to the New York Department of Health, and of this number, seventeen, or fifty per cent were directly traceable to the use of infected shaving brushes. (Monthly Bulletin New York Dept. of Health, 10:249, 1921). These figures are rather significant. Much of this infection could be avoided by the simple rule of sterilizing all brushes that are bought in the market. The method recommended by Surgeon General Blue is very efficient. The brush should be soaked for four hours in a ten per cent solution of formalin. The solution should be kept at a temperature of 110 degrees Fahrenheit, and the brush so agitated as to bring the solution into contact with all the hairs or bristles.

Treatment of anthrax with anti-anthrax serum, is now being adopted in the larger clinics in this country as well as abroad. The reduction of the mortality rate in cases treated with anti-anthrax serum can be seen from the number of cases of anthrax that occurred in New York in recent years.

Year	Cases	Deaths
1915	13	9
1916	4	13
1917	16	9
1918	15	4
1919	14	9
1920	12	1

Hubbard and Jacobsen (Monthly Bulletin New York Health Dept. 10:249, No. 1921), have concluded from a study of thirty-four cases, that the most successful method of therapy lies in the local and general administration of anti-anthrax serum.

BREAST TUMORS.[*]

Czar C. Johnson, M. D., Lincoln, Nebraska.

The female mammary gland is a transitional organ of considerable esthetic and subsistence value. Its life cycle may be divided into three phases. First: from birth to puberty, a potential period of primary growth. Second: from puberty to the menopause, one of evolution and complex activity, manifested by functional and cellular changes at each menstrual, gestative, lactative and post lactative epoch. Third: just prior to, throughout and after the climacteric when it normally undergoes involution with loss of function.

The breast is an external tubular organ represented by seven fundamental tissue units, namely: fibrous, adenomatous, myomatous, neural, epithelial and endothelial, with the usual regulative rest cells of normal regeneration. In order to secure maximum efficiency, it occupies an accessible position and is so constructed that the greatest production may be had in the least possible space. It is predominantly glandular. To compensate for its exposure, nature has provided a firm muscular foundation with fascia to reinforce its support, a framework of fibrous tissue to hold its glandular structure and a generous covering of fat to protect it.

It would seem that nature anticipated the necessity of adequate drainage by providing abundant lymphatics, arranging them in many directions. As evidence of their efficiency, in 10,000 post mortem examinations of cancer deaths, there were metastases in 97½ per cent of the cases due to breast cancer. The cervix uteri is the only other organ anywhere near approaching this percentage.

Being an external organ with a direct outlet for its products it is liable to irritative invasion, which together with internal products of catabolism subjects it to inevitable trauma. Cheatle, discussing duct cancer, makes this statement: "If I might be allowed to state in what direction I would work had I the knowledge of biochemical processes, and the time and ability to carry them out, I would study autolytic products of injured epithelial cells, to attempt to determine whether they could or could not, in whole or in part, influence ordered or disordered cell multiplication. It seems to me an investigation upon which great issues might depend. Many of these cancer bearing ducts to which I have referred, show no signs of surrounding inflammatory fauna. Therefore I would bear in mind the possibility, that irritation that is capable of inducing epithelial cells to proliferate might be too slight to induce inflammatory affection." This observation made by a master should be given careful consideration.

All tissue is endowed with the property of cellular replacement. This is mentioned, because any treatment that destroys this mechanism will do more harm than good. Reactions to destructive processes are manifested in degrees, first by cellular hypertrophy; second, cellular hyperplasia and third, cellular migration. As long as destructive proliferation is confined to hypertrophy and hyperplasia, the product remains benign, but the instant there is a cellular migration beyond the limiting membrane, whether the migrating cells are typical or not, malignancy has occurred. McCarty, I understand, goes a step further and determines malignancy by the cell type. I do not believe that pathologists as a whole have accepted this innovation. Certainly the average man is not competent to make so fine a distinction.

In a glandular organ subject to almost constant transition, one must expect unusual cellular activity. It is not strange that guiding influences are often in abeyance or lost entirely, with cellular arrest resulting. Nor is it at all unreasonable to suppose that migration would be a frequent occurrence, which event would be difficult in the extreme to recognize clinically. At the present time gross breast changes are easily determined while early clinical signs of cellular migration are impossible to detect. McCarty states that 22 per cent are undiscovered.

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[*] Read before the Lancaster County Medical Society, Nov. 19, 1921.

To wait for frank signs of malignancy is procrastination with a vengeance and in my opinion is not in keeping with modern medicine. Our therapeutic actions should be based upon a percentage of probabilities. I have endeavored to collect reliable data upon which to base an opinion.

A casual review of the literature will convince one of the marked absence of uniformity in pathological terminology. In one series of about 2000 cases clinicians used fifty-one diagnostic terms. In 1000 cases reported to me personally, thirty different pathological conditions were recorded. Another glaring example of this confusion is a diffuse desquamative hyperplasia, occurring near the menopause. Nineteen different authorities apply nineteen different descriptive terms. We therefore deemed it impractical with the present lack of standardization to endeavor to make more than two general classifications, namely: Benign and malignant. In this paper, sarcoma will be included with carcinoma as malignant. (Sarcoma amounts to between three and four percent of all malignant breast tumors, and may be computed on that basis. In a series of 901 cases of malignant breast tumor collected at large, 40 were sarcomata). We desired to ascertain if possible the incidence of malignancy in breast tumors in Nebraska. The following questionaire was sent to every known hospital in the state.

What is the total number of cases of breast tumor recorded in your hospital for the period Jan. 1st, 1918 to Jan. 1st, 1921?

What is the total number of these cases that were malignant?

Replies were received from the following representative hospitals: St. Elizabeth's, Lincoln; University, Presbyterian, Clarkson Memorial, Ford, Swedish Mission, Nicholas Senn, Immanuel, St. Joseph, Omaha; St. Francis, Grand Island; Deaconess Home and Hospital, Beatrice Sanitarium, Beatrice; Ord Hospital, Ord; Tekamah Hospital, Tekamah; State Hospital, City Hospital, Norfolk; Pawnee City Hospital; Falls City Hospital; St. Joseph, Alliance; Lutheran Hospital, York; Mid West Hospital, Scotts Bluff; Nebraska Sanitarium, Hastings; Auburn Hospital; State Hospital, Lincoln; Green Gables Sanitarium, Lincoln. The others failed to answer. Table 1 is a tabulation of these reports:

Cases Breast Tumor 1918 to 1921	nant Malig-	Benign	Malig- nant Percent
331	191	130	61.09%

I sent the following questionaire to sixty of the largest hospitals in the United States outside of Nebraska.

1. What is the total number cases breast tumor recorded in your hospital for the period Jan. 1st, 1918 to Jan. 1st, 1921?
2. What is the total number of these cases that were malignant?
3. What is the total number of cases clinically diagnosed benign that were found malignant in pathological laboratory?
4. What is the total number of cases clinically diagnosed malignant that were found benign in the pathological laboratory?

Replies were received from the following hospitals: Barnes, St. Louis; Jefferson Medical College, Municipal Hospital, Philadelphia General, Philadelphia; Boston City, Mass., General, Boston; Bellevue and Allied Hospitals, City Hospital, New York City; Kings County, Swedish Hospital, Brooklyn; Presbyterian, Michael Reese, Cook County, Chicago; City and County, San Francisco; Charity Hospital, New Orleans; Minneapolis General, Minneapolis; St. Francis, Pittsburg; St. Francis and Michael Reese Hospitals were the only ones to answer the last two questions. It is appreciated, but the number is not large enough to be used. Some declined to furnish the information and no replies were received from the others.

Table No. 2 is a data compiled from the answers received.

Cases Breast Tumor 1918 to 1921	Malig- nant	Benign	Percentage Malig- nant
1449	1047	402	72.2%

We then collected data from reliable papers published between the years 1908 and 1918. Our collection does not by any means include all published reports, but is a representative number.

Table No. 3 is a compilation of these.

Cases Breast Tumor 1908 to 1918	Malig- nant	Benign	Percentage Malig- nant
3524	2060	1464	58.4%

Rodman makes the statement that in 5000 cases gathered from European Clinics, 16½ percent were benign. It is presumed that the other 83½% were malignant. This series is not included for obvious reasons. With the three tables above we have reliable data on 5248 cases of breast tumor of which number 3286 were malignant.

The percentage for the State of Nebraska is	61½
The percentage for the U. S. outside of Nebraska is	72
The percentage for published papers is	58.4
The average percentage for the entire group is	62.3

This must not, I feel, be taken at its face value. I am confident that it does not represent the true ratio of malignancy in all breast tumors at large, for it is highly probable that large numbers are never recorded, while it is very likely that practically all malignant ones are. But, until some more exact survey can be made we must utilize hospital reports upon which to base our deductions.

Table No. 4 is the total number of deaths due to breast cancer in the registration area of the U. S. for the years 1918 and 1919. Reports for 1920 were not available.

Deaths from cancer of the breast 1918 and 1919.

1918	1919	Rate per 100,000 population	1918	1919-1920
6,050	6,262		7.4	7.4

Table No. 5 is the total number of deaths due to cancer of the breast in Nebraska for the years, 1918, 1919 and 1920.

1918	1919	1920	6 mos. 1921
55	61	53	29

Tables 4 and 5 are included in this paper as a reminder of neglected opportunities.

From a prophylactic standpoint, the breast offers a greater opportunity for the eradication of malignancy than does any other organ except the skin and possibly the cervix. But, if there is to be any success, we must base our actions upon a percentage of probabilities. Anyone who has given study to the subject arrives at the conclusion that there are no "safe" positive signs of malignancy in the early stages. Unilateral acquired retraction of the nipple and fixity, approach positiveness as diagnostic signs, but to wait for these is a most perilous practice, for they are eleventh hour signals. As to age, it is probably the most valuable single item. We have been unable to find more than 9 cases of carcinoma of the breast before the age of 25 in 10,000 reported breast tumors. The youngest reported case was 8 yrs. of age.

Personally, I believe that all cystic changes of the breast are products of hyperplasia, so that any cystic lesion is highly suggestive. An exhaustive pathological discussion might be included in this paper, but it would lead to the same logical conclusion in the end. We believe that any tumor of the breast should be considered as a potential cancer and dealt with accordingly. Any cystic disease or chronic inflammation of the breast should be viewed with suspicion, 10-20% become malignant. The only means of ascertaining the true condition present is a surgical diagnosis, checked by a microscopic examination. But from the very nature of things the surgeons macroscopic examination at the operative field should determine his actions. With modern surgical methods a diagnosis may be made with no mutilation in most instances and at the same time the liability removed. It is the part of prudence to choose this course.

This is a prophylactic era of medicine. Twenty years ago progressive surgeons were advising early operative interference for appendicitis and allied conditions to prevent peritonitis. Time has proven their teaching correct. But there still remains the procrastinator and avoidable deaths. Judgment of values is a necessary attribute in all undertakings. In the past the medical profession has been the recipient of some valuable and more ephemeral innovations. There has been it seems to me, a great tendency to shift the burden of responsibility. The last decade has seen the advent of the X ray and radium enthusiasts. The X ray is recognized as a diagnostic instrument of great value. Its use as a preoperative and postoperative agent in breast tumor, clinically cancer, may have considerable merit. Time will tell. We give the X ray and radium, to a questionable degree, credit for their palliative value in inoperable breast cancer. But why should any such conditions be allowed to occur? We believe that there will be no remission in deaths due to cancer of the breast until physicians, and through them the laity, are brought to realize that the only way to treat the disease is by eliminating precancerous conditions. For this elimination, I personally believe that surgery will never be supplanted. It has stood the acid test of time and remains today the "Survival of the fittest."

The Fifty Fourth Annual Convention Of The Nebraska State Medical Association.

OMAHA, APRIL 24-27, 1922.

OPENING EXERCISES.

INVOCATION.

Dr. Frank G. Smith, Pastor First Congregational Church, Omaha.

Almighty God, our heavenly Father, we pray that this moment we spend here with bowed heads may be no perfunctory part of the program of this day's exercises, but we pray that it may be a moment in which we shall be truly conscious of our sonship and of Thy Fatherhood.

May we realize that just as Thy great life-giving power is everywhere present—in the blush of the rose and in the ripening grain— so Thy spiritual power and wisdom is in all places at all times, and everywhere to bless.

So we pray today in the midst of our various problems and researches, we may always seek that wisdom that is from above, that is first pure, and easy to be intreated, full of mercy and good fruits.

We thank Thee for this splendid army of men who are making tireless research in the realm of the relationship between the mind and the machinery with which the mind performs its task. We thank Thee for all that has been wrought in this realm, and we pray that each and every one of them may be guided of Thee and conscious of Thy fellowship and companionship.

Bless them as they enter upon the discussion and companionship of this hour, and may it all redound to Thy glory and to their good, and to the health and blessing of our fellow men.

In Thy dear and precious name we ask it. Amen.

ADDRESS OF WELCOME.

Hon. James C. Dahlman, Mayor of Omaha, Omaha, Nebraska.

Mr. President, Ladies and Gentlemen: I want to say to you right now I am not going to undertake to tell a convention of doctors and surgeons about where they can go and what they can do while in Omaha. The city is yours to do what you please, because I know you will do it anyway.

I was amazed to see this is your fifty-fourth convention. I was just thinking if some of the gentlemen who organized this society could come back and see the great advancements made in your line of work, how surprised they would be! And it is possible some of them are in this room.

I am very glad indeed to come over here merely to bid you welcome. We appreciate the fact that you have selected this great metropolitan city in which to hold your convention. I have a double purpose in coming over. First, I am glad to be invited to give you the key. The next reason is because I want to see how I stand with you.

It reminds me of a couple of colored fellows who entered the office of a friend of mine, and one of them said, "Can I use your telephone?"

"Sure! Go ahead."

"Is this Douglas 175?"

The answer evidently was "Yes."

"Are you the gentleman that advertised five days ago wanting somebody to take care of your automobile and furnace?"

Again the reply was in the affirmative.

"Is there any chance to get that job?"

"It has already been filled."

"Already filled it?"

"Yes."

"Is the man giving good satisfaction?"

"Yes."

"Thank you."

He turned around. and his partner said, "That's the trouble! No wonder you are always out of work! Why didn't you go five days ago and ask for that job? Here you are calling the man up when the place is filled."

The other fellow said, "Don't worry about me. When I saw that ad. I got that job. I wanted to see how I stood with this fellow."

I want to see how I stand with you fellows out in the State.

I am going to talk over the radio tonight. I am going to tell them about being over here this afternoon talking to five hundred doctors and surgeons. If they don't get any more radio messages, they will know what has happened.

I am glad you are here at this particular time. We have just completed a two weeks' clean-up. We only hauled away two thousand truck loads of old cans and rubbish. I am glad you are here so you can see what we are doing.

We are proud of this city and of our State. We feel, located here on the banks of the great Missouri, we are destined to be one of the great cities of the nation. We are the gateway to this great undeveloped empire west of us. It has been estimated there is room for one hundred million people west of the Missouri River—every foot of it tributary to this state. It will be developed some day; so when we feel we will be one of the great cities of the nation, it is no idle dream.

This city is made up of two hundred thousand souls. They are proud of its passion for education. They are proud of its religious life. They are proud of its humble and elegant homes. They are proud of its great hospitals, schools, churches, of its great business establishments, and its great park system. We have fourteen hundred acres of parks, connected with thirty-five miles of boulevards. They have been set aside not only for this, but for future generations; because we know one of the great problems to be solved, not only in this nation, but all others, is how to take care of the men and women and the boys and girls in these great congested districts. So every improvement we make in the great city of Omaha is backed by its men and women, having for its purpose to do something for humanity, and every act is to raise civilization just a little bit higher than it was ever raised before. That is the work of this great community.

As its chief executive, I have been elected for a short time to express the warmest welcome that can fall from my lips, not only to gatherings such as I am addressing today, but all other gatherings, to make them feel that the people of this city extend to them the warmest welcome that can be extended; and through me they are extending that welcome to you men today.

These problems that must be solved after this great world war are tremendous problems. It will take harmony; it will take hard work, and it will take economy to bring about their solution. And those of us living within the limits of this great city understand it is our duty to do our part, and we meet those problems with free hand and open heart, ready to do our part in bringing this great nation of ours back to where it was before the world war started. Billions of dollars of property were destroyed and millions of lives lost, from which it will take years to recover.

People are burdened with an enormous debt. It must be paid and will be paid, because this nation will never repudiate its debt while that grand flag of ours is floating over us.

That is the kind of people I am representing. I am here to extend the warmest welcome I can express. The key is yours to do as you please with, because I know when it is returned to us, it will come back as clean and as white as when you took it over.

I wish you well, and hope your deliberations here will be of great benefit, not only to the people at large, but to your own organization.

54TH ANNUAL SESSION OF THE NEBR. STATE MEDICAL ASS'N. FIRST SESSION OF THE HOUSE OF DELEGATES.

Monday Evening, April 24th, 1922.

The first session of the House of Delegates met in the Fontenelle hotel, Monday evening, April 24th, and was called to order by President B. B. Davis at 7:50. After bidding the delegates welcome, Dr. Davis asked that he be excused on account of the illness of his wife and that a president pro tem be appointed at once to take charge.

Dr. Nielsen nominated Dr. A. J. Jenison of Harvard, who received the unanimous vote of the delegates.

There being no objection, the chair declared the reading of the last minutes would be dispensed with and that they be approved as published in the Journal.

Roll call of delegates showed 45 members present.

Dr. Nielsen moved that the reading of the minutes of the Board of Councilors meeting be dispensed with and that they be approved as printed. Motion seconded and carried.

REPORTS.

The following reports were then given and referred to the council for action:

Dr. Adams read the report of the Program Committee.

The report of the committee on Journal and Publication was read by the chairman and editor, Dr. F. A. Long.

Dr. I. H. Dillon read the report of the committee on care and prevention of contagious disease.

Dr. Von Mansfelde, chairman of the committee on Medico-Legal Defense, stated that the report of their work for 1921 had been published, but he wished to add that the committee had been very active in stopping illegal practitioners from practicing medicine, and asked that all members cooperate with the committee by reporting all such cases that came to their attention.

The report of the campaign committee was read by the chairman, Dr. Hohlen.

The secretary read the report of the committee on council on medical education in the absence of the chairman, Dr. J. S. Welch.

The report of the committee on memorials was presented by Dr. Overgaard, the members standing during its reading. He then moved that a page in the Journal be set aside in memoriam for the deceased members. The motion was seconded and carried.

A recess of 10 minutes was then declared by the chair preceding the election of the committee on nominations.

RECESS.

The following members were nominated in their respective districts:

District No.	1.—Dr. J. H. Vance	Omaha
" "	2.—Dr. K. S. J. Hohlen	Lincoln
" "	3.—Dr. C. J. Reilly	Beatrice
" "	4.—Dr. F. A. Long	Madison
" "	5.—Dr. W. H. Heine	Hooper
" "	6.—Dr. J. M. Woodard	Aurora
" "	7.—Dr. A. J. Jenison	Harvard
" "	8.—Dr. J. P. Gilligan	O'Neill
" "	9.—Dr. Chas. Frandsen	Scotia
" "	10.—Dr. F. A. Wells	Axtell
" "	11.—	
" "	12.—Dr. A. C. Schoch	Alliance

It was suggested that the vacancy in the 11th district be filled at a later meeting.

It was moved, duly seconded and carried that the above members be elected.

Dr. Nielsen moved that the chair appoint a committee composed of three Omaha men to express the sympathy of the house of delegates to Mrs. B. B. Davis in the form of some floral tribute.

Adjournment.

SECOND SESSION OF THE HOUSE OF DELEGATES.

Tuesday, April 25th, 1922.

The second session of the house of delegates met in the Fontenelle Hotel, Tuesday morning, April 25th, at 8:00 o'clock. The meeting was called to order by president pro tem, Dr. A. J. Jenison.

Forty members responded to roll call.

The minutes of the previous meeting were read and approved.

Under unfinished business, the report of the council on public policy and legislation and the report of the committee to confer with a committee from the State Teachers' Ass'n., were read by the secretary and referred to the council.

Dr. Jenison stated that he had named the following men to serve on the committee to extend the association's sympathy to Dr. and Mrs. B. B. Davis: Drs. H. M. McClanahan, Warren Thompson and Morris Nielsen.

The minutes of the board of councilor's meeting, held Monday evening, were read by Dr. Overgaard.

It was moved that the recommendations of the council be adopted, it being necessary, however, for the change in the By-Laws to lay over one day and the amendments to the constitution to be held until the next annual session. Motion was seconded and carried.

After some announcements, the house was declared adjourned until 8:00 A. M. Thursday.

THIRD SESSION OF THE HOUSE OF DELEGATES.

Thursday, April 27th, 1922.

The third session of the House of Delegates met in the Fontenelle Hotel, Thursday morning, April 27th, 1922. The meeting was called to order by Chairman A. J. Jenison at 8:00 o'clock.

Roll call showed 46 members present.

Secretary Adams read the minutes of the previous meeting, which, with no corrections stood approved.

The report of the nominating committee was given by Dr. F. A. Long as follows:

For President-Elect: Benj. F. Bailey, Lincoln; Norman T. Johnston, Upland; C. P. Fall, Beatrice.

Vice-Presidents: R. W. Fouts, Falls City; A. E. Cook, Randolph.

Councilors: 5th District, Morris Nielsen, Blair; 6th District, Frank Tornholm, Wahoo; 7th District, H. E. Potter, Fairbury; 8th District, W. J. Douglas, Atkinson; 11th District. (no one present).

Delegate to the A. M. A. for unexpired term and for 2 years: R. W. Fouts, Falls City; Alternate: J. P. Gilligan, O'Neill.

Delegate to Council on Medical Education of the A. M. A., J. S. Welch, Lincoln.

Member of Committee on Journal and Publication: W. O. Bridges, Omaha.

Member of Medico-Legal Defense Committee: A. S. Von Mansfelde, Ashland.

Delegate to the Arkansas Medical Society Homecoming meeting: F. B. Young, Gering.

There being no nominations from the floor, Chairman Jenison appointed Drs. J. M. Woodard and F. A. Wells to act as tellers and ordered the house to proceed to election.

Election of president-elect showed a total of 46 votes cast. Of these Dr. Bailey received 25 and was declared elected.

Upon motions, duly seconded and carried, the secretary was instructed to cast the unanimous vote of the house electing the following:

Vice-Presidents: R. W. Fouts, Falls City; A. E. Cook, Randolph.

Councilors: 5th District, Morris Nielsen; 6th District, Frank Tornholm; 7th District, H. E. Potter; 8th District, W. J. Douglas; (Vacancy in 11th District to be filled by the Council).

Delegate to the A. M. A.: R. W. Fouts; Alternate: J. P. Gilligan.

Delegate to Council on Medical Education of the A. M. A.: J. S. Welch.

Member of Committee on Journal and Publication: W. O. Bridges.

Member of Committee on Medico-Legal Defense: A. S. V. Mansfelde.

Delegate to the Arkansas Homecoming meeting: F. B. Young.

The votes were cast as ordered.

It was moved that the secretary be instructed to appear before the general session and announce the results of the election. Motion seconded and carried.

The minutes of the Board of Councilors meeting were read by Dr. Overgaard. On motion they were adopted.

The committee appointed to extend the sympathy of the House of Delegates to Dr. and Mrs. B. B. Davis, reported through Dr. McClanahan, who read a note of thanks from Dr. Davis.

It was moved and seconded that the proposed change in Chapter X, Section 2 of the By-Laws—"The Chairman of this Committee (Medico-Legal Defense) shall receive a salary of $50.00 per month"—be adopted. Motion carried.

Dr. Overgaard moved that the secretary be instructed to communicate with the secretary of the Iowa State Medical Society relative to holding a joint meeting with the Nebraska State Medical association in 1924. Motion seconded and carried.

Dr. Long moved that the next annual meeting be held in Lincoln, the time to be determined by the executive committee. Motion seconded and carried.

Dr. Overgaard moved that the house request the Lancaster County Medical Society to appoint a committee of three to confer with the daily press in regard to publicity for the next annual meeting, and that a similar committee be appointed by Douglas County for the following year. Motion seconded.

Dr. Johnston moved to amend that a permanent committee of three be appointed, one member to be from Lincoln, one from Omaha and one from the state.

On motion of Dr. A. R. Mitchell the whole matter was tabled.

Dr. Wells moved that the association, through the House of Delegates, extend a vote of thanks to the Committee on Arrangements, who helped to make this meeting a success. Motion seconded and carried by a rising vote.

Upon motion the House adjourned sine die.

FIRST MEETING OF THE BOARD OF COUNCILORS.

Monday Evening, April 24th, 1922.

The Board of Councilors met in the Fontenelle Hotel, Monday evening, April 24th, immediately following the adjournment of the House of Delegates. The following members were present: Drs. Morris Nielsen, A. P. Overgaard, N. T. Johnston, A. E. Cook, R. W. Fouts, H. E. Potter, A. J. Stewart, Frank Tornholm, R. D. Bryson and H. J. Lehnhoff.

It was moved that the report of the committee on the Care and Prevention of Contagious disease be referred to the House of Delegates with the recommendation that it be adopted and published in the Journal. Motion seconded and carried.

Dr. Fouts moved that the report of the committee on council on Medical Education be referred to the House of Delegates with the recommendation that it be adopted and published. Motion seconded and carried.

It was moved that the report of the Campaign Committee be referred to the House of Delegates with the recommendation that Dr. Hohlen be authorized to spend the funds of the committee as he deems best, reporting to the association at the next annual meeting. Motion seconded and carried.

It was moved, seconded and carried, that the report of the committee on Journal and Publication, the report of the Program Committee and the report of the Medico-Legal Defense Committee, be referred to the House of Delegates with the recommendation that they be adopted.

Dr. Lehnhoff moved that the council recommend to the House of Delegates that Chapter X, Section 2, of the By-Laws be amended to read as follows: "The Chairman of the Medico-Legal Defense Committee shall receive a salary of $50.00 per month," to be effective from Jan. 1, 1922. This motion met with the enthusiastic affirmation of the whole body of councilors and was seconded and carried.

Dr. Johnston moved that it be the sentiment of the Board of Councilors that some provision should be made to confer honorary membership upon members entitled to the same. Motion was seconded by Dr. Cook and carried.

The chairman then asked that the committee appointed to make amendments to the Constitution and By-Laws draw up a section to that effect to be referred to the House of Delegates.

The meeting then adjourned.

Proposed Amendments to the Constitution.

To amend Article III, Section 2, to read as follows:

"Counties having five or more eligible physicians may form county medical societies."

Section 3:

"In counties where it is found more practicable, eligible physicians may join with neighboring county or counties to form a society."

Article IV, Section 3:

"Honorary Members. Honorary membership in this association may be conferred upon any member by a two-thirds vote of the House of Delegates in regular session, upon the recommendation of the county society of which he is a member, and the approval of the Board of Councilors. Such membership shall be for life, unless said membership is revoked by the society of the county in which he resides."

SECOND MEETING OF THE BOARD OF COUNCILORS.

Tuesday, April 25, 1922.

The second meeting of the Board of Councilors was held at 9 o'clock Tuesday morning, April 25th. The following members were present: Drs. A. P. Overgaard. A. E. Cook, N. T. Johnston, R. W. Fouts, F. Tornholm and Morris Nielsen.

Dr. Fouts moved that the report of the committee on Public Policy and Legislation be referred to the House of Delegates with the recommendation of the council that it be adopted and placed on file. Motion seconded and carried.

Dr. Johnston moved that the report of the committee to confer with the teachers be referred to the house with the recommendation that it be received and the committee dismissed with a vote of thanks. Motion seconded and carried.

It was moved, seconded and carried, that the budget for 1922 be made up as follows and that it be submitted to the house with the recommendation that it be adopted:

State Medical Journal, per member	$ 1.75
Campaign Committee	500.00
Secretary-Treasurer's office	800.00
Salary of Secretary-Treasurer	600.00
Librarian's Expense	25.00
Salary of Chairman of Medico-Legal Defense	600.00
Expense of Chairman of Medico-Legal Defense	200.00
Councilor District Society Meetings	360.00
Expense of Councilors	138.05
Official Stenographer, 1922 meeting	130.00

The meeting was then declared adjourned until the call of the Chair.

REPORT OF COMMITTEE ON COUNCIL ON MEDICAL EDUCATION.

Your committee on Medical Education has busied itself during the current year on a resurvey and inspection of the hospitals of the state. The work has been done by the committee itself where possible, and in many cases by secretaries of the county medical societies and others delegated in their respective territories. Only twelve county secretaries have failed to respond to our inquiries, namely, Boone, Boyd, Cass, Clay, Cuming, Dixon and associated counties, Hamilton, Johnson, Knox, Pierce, Polk, and Richardson.

We have cooperated with the A. M. A. Council on Medical Education and Hospital Survey, using a very comprehensive hospital survey report blank provided by them for the larger hospitals of the state, while for the small hospitals a much briefer report was obtained. These methods were chosen, not only to accurately record the hospital data for the state, but also to encourage greater endeavors on the part of the best as well as the poorest towards higher standards.

It is no longer sufficient to inspect only those hospitals desiring internes. Some check should be had on every hospital offering to serve the sick, and the work of this association should continue to the end that every hospital, however small, will feel its responsibility to the patient sufficiently to standardize its staff, its nursing, its history taking, its laboratories and its operating accommodations. This work is progressing faster among the larger hospitals because it is possible to bring to bear more quickly the necessary influences. Hospital associations, as well as other medical and surgical organizations, are insisting upon improved standards. As a result some of our hospitals have already attained a high degree of efficiency. Many of the small ones are struggling with an efficiency so low that it is doubtfully permissible. Their only excuse to exist is to function as an emergency hospital, and where larger or efficient hospitals are in the same environs they should be closed, just as third rate medical schools were annihilated some years ago. At present there is no machinery with which to do this. We can but point out the needs and encourage those willing to improve under existing circumstances. Publicity is a powerful factor, and to some degree perhaps a means to this end. Histories must be written, uniform laboratory work accomplished by technicians or otherwise, better nursing and greater cooperation achieved on the part of doctors to whom the use of the hospital is available.

The large hospitals have shown some improvement in history taking and filing, as well as in laboratory work, nursing and staff activity. There is much room for improvement. Staff meetings have wrongly taken on the character of medical meetings instead of hospital affairs. A not too critical inspection of histories of fatal cases, of unimproved cases, of laboratory reports, operative and autopsy findings which fail to confirm the preoperative diagnoses or causes of death, is more suitable staff work. Such comparisons and considerations are not only instructive but stimulative, and even eliminative where error is too persistent.

Some of the detailed correspondence and tabulating of your committee's work is not yet finished. It is well under way, however, and final reports for the A. M. A. Council on Medical Education and Hospitals are forthcoming. But at the present time it is proper to report that from the 54 county medical societies, representing 61 counties, 101 hospitals are reported. There are 57 counties without a hospital. In the 101 hospitals there are 3,550 beds, and of these 41 hospitals have 25 or more beds. Of these, 19 are denominational. Counting the population of the state, which is 1,296,372, we have one hospital bed for each 365 people. This is about the average for the entire United States.

Respectfully submitted,
J. S. Welch, Chairman.

REPORT OF COMMITTEE ON CARE AND PREVENTION OF CONTAGIOUS DISEASES.

We, your Committee on the Care and Prevention of Contagious Diseases, beg to submit the following report for the calendar year of 1921.

In order to make the state's requirements conform to the requirements of interstate quarantine it was found necessary to make a few slight changes in the rules and regulations as promulgated by the State Bureau of Health of the Department of Public Welfare for the control of contagious diseases. The following diseases have been added to the list of those reportable.

Anthrax.
Cholera (Asiatic).
Encephalitis Lethargica.
Hydrophobia (Rabies).
Leprosy.
Malarial fever.
Ophthalmia Neonatorum.
Paratyphoid fever.
Plague.
Tetanus.
Typhus fever.
Yellow fever.

Influenza has been changed from the list of quarantineable diseases to those requiring isolation. The handling of smallpox has been changed so as to exempt from the provisions of quarantine those persons who are immune to the disease by reason of having had it or by means of protection by recent successful vaccination. The following diseases have been added to the list requiring fumigation prior to the release of premises from quarantine: Diphtheria, epidemic cerebrospinal meningitis and scarlet fever.

During the calendar year of 1921 there were reported to the State Bureau of Health the following diseases:

Anthrax	1
Chancroid	334
Chicken pox	1,240
Diphtheria	1,638
Encephalitis lethargica	18
German measles	30
Gonorrhea	4,045
Influenza	108
Malaria	2
Measles	1,290
Meningitis, cerebrospinal	28
Mumps	390
Ophthalmia neonatorum	1
Pneumonia	51
Poliomyelitis, acute infection	64
Scarlet fever	2,470
Septic sore throat	13
Smallpox	3,048
Syphilis	1,997
Tetanus	10
Trachoma	2
Tuberculosis, pulmonary	225
Typhoid fever	200
Whooping cough	380
	17,585

In comparing the contagious report for 1921 with that of the preceding year we find an increase in the total number reported in the following diseases: Chickenpox, diphtheria, encephalitis lethargica, German measles, gonorrhea, mumps, anterior poliomyelitis, scarlet fever and typhoid fever. We find a decrease in the following diseases: Chancroid, influenza, measles, smallpox, syphilis and whooping cough.

A study of the reports of the contagious diseases from various counties in the state reveals the fact that in several localities the physicians are very negligent in making these reports. In five counties of the state there were no contagious diseases reported during the entire year while in nineteen counties of the state there were less than ten cases of contagious diseases reported in the entire year.

The office of the State Bureau of Health has received many letters from the laity complaining of the laxness of the local medical profession in that community in the matter of reporting the handling of contagious diseases. Prosecutions have been made in some of the more flagrant cases. From the temper of many of the letters of the laity to the State Bureau of Health regarding the laxity in the handling of contagious diseases, we believe it is incumbent upon the individual members of the medical profession to see to it that in the future these diseases are reported and the public adequately protected from them. If the medical profession of this state continues for a few days more its apparent indifferent and careless manner in connection with the control of contagious diseases the public is going to demand adequate protection through more drastic legislation.

Respectfully submitted,
I. H. Dillon, Chairman.

House of Delegates Roll Call.

County Delegate and Alternate	Meetings		
Adams			
E. B. Hamel			
Boone			
Box Butte			
C. Schoch	1	0	1
Buffalo			
W. E. Rose			
Burt			
H. W. Benson	1		
Butler			
O. E. Longacre		1	
R. F. Mullen			
Cass			
M. W. Thomas			
Cedar-Dakota-Dixon			
Thurston-Wayne			
N. L. Hansen			
F. P. Dorsey			1
Chase-Dundy-Hayes			
Hitchcock			

Clay			
A. J. Jenison	1	1	1
Cuming			
T. D. Thompson			
F. J. Kotlar			
Custer			
G. I. Sellon			
F. A. McGrew			
Dawson			
J. W. Bozarth	1	1	
Dodge			
W. H. Heine	1	1	1
Fillmore			
V. V. Smrha	1	1	1
Franklin			
H. C. Smith		1	1
F. L. Baker			
Furnas			
F. A. Brewster			
Gage			
C. J. Reilly	1	1	1
Hall			
H. B. Boyden	1		1
Hamilton			
J. M. Woodard	1	1	1
Harlan			
J. A. Cameron		1	
Holt			
F. L. Wilson			
B. V. McDermott			
Howard			
Chas. Frandsen	1	1	
Jefferson			
G. A. Birdsall			
H. H. Humphrey		1	
Johnson			
J. M. Curtis			
Kearney			
F. A. Wells	1	1	1
Keith			
C. E. Vandiver			
C. H. Smith			
Knox			
R. E. Johnson			
Lancaster			
J. J. Hompes		1	1
F. F. Teal	1	1	1
K. S. J. Hohlen	1	1	1
Lincoln			
O. R. Platt			
F. J. Wurtele			
Madison			
E. L. Brush			
Merrick			
Nance			
C. D. Williams	1	1	
Nemaha			
E. M. Taylor			
Nuckolls			
F. W. Mitchell			
Omaha Douglas			
J. A. Henske	1	1	1
Frank Conlin			1
A. F. Tyler	1		1
J. H. Vance	1	1	1
A. Sachs	1		1
J. F. Langdon	1		1
C. W. Pollard			
Otoe			
A. P. Ginn	1		
Pawnee			
H. M. Harvey	1	1	
Phelps			
K. P. Palmer	1	1	1
Pierce			
C. E. Rodgers		1	1
Platte			
A. A. Bald			
A. G. Lueschen			
Polk			
J. C. Malster			
D. J. Smith			
Red Willow			
W. D. Mackechnie			
Richardson			
J. C. Gillespie	1	1	
Saline			
W. H. Pallett	1		
Saunders			
A. E. Stuart	1		
Scottsbluff			
T. J. Vanderhoof	1		
Seward			
W. Morrow			
J. E. Meisenbach			
Thayer			
R. F. Decker	1	1	1
Valley			
Washington			
R. J. Murdock	1	1	1
Webster			
R. S. Martin			
York			
H. O. Bell		1	1

Officers

President, B. B. Davis	1		
Vice-President, P. F. Dodson			1
Vice-President, P. R. Howard			
Secretary-Treas., R. B. Adams	1	1	1
Librarian, W. P. Wherry			

Councilors

1st District, A. P. Overgaard	1	1	1
2nd District, H. J. Lehnhoff	1	0	
3rd District, R. W. Fouts	1	1	1
4th District, A. E. Cook	1	1	1
5th District, Morris Nielsen	1	1	1
6th District, F. Tornholm	1	1	1
7th District, H. E. Potter	1	1	1
8th District, W. J. Douglas			1
9th District, R. D. Bryson	1		1
10th District, N. T. Johnston	1	1	1
11th District, C. E. Selby			
12th District, A. J. Stewart	1		1

Ex-Presidents

Charles Inches			
M. L. Hildreth			
A. S. von Mansfelde	1	1	1
H. B. Lowry			
J. E. Summers			
F. D. Haldeman			
W. O. Bridges			
A. R. Mitchell			1
Robt. McConaughy	1	1	1
H. M. McClanahan	1		1
A. B. Anderson			
A. F. Jonas			
F. A. Long	1	1	1
Harold Gifford			
L. M. Shaw			
P. H. Salter			
J. P. Lord	1		
A. D. Nesbit			
I. N. Pickett			
D. C. Bryant			
J. P. Gilligan	1	1	1
E. W. Rowe	1	1	1
W. F. Milroy			
C. L. Mullins			
J. M. Banister			1
H. W. Orr	1	1	1
M. S. Moore		1	1

In Memoriam

Never fear but in the skies
Saints and angels stand
Smiling with their holy eyes
On this new-come band.
—Joyce Kilmer.

The Members of the Nebraska State Medical Association Who Passed to the Great Beyond.

—1921-1922—

W. K. Loughridge	**May 19, 1921**
Lorene Painter	**June 17, 1921**
William B. Ely	**June 23, 1921**
Harry L. Arnold	**July 8, 1921**
Frederick W. Lake	**July 10, 1921**
George Tilden	**Aug. 16, 1921**
E. S. Wenger	**Aug. 25, 1921**
J. W. Mitchell	**Aug. 27, 1921**
Charles Rosewater	**Nov. 24, 1921**
J. B. Conaway	**Jan. 13, 1922**
M. T. Sigler	**Jan. 20, 1922**
A. K. Detwiler	**Jan. 30, 1922**
S. H. Smith	**April 18, 1922**

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Committee on Journal and Publication.
F. A. Long, Chairman....................Madison
W. O. Bridges....................Omaha
B. F. Bailey....................Lincoln
R. B. Adams, Ex officio....................Lincoln

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THE FIFTY-FOURTH ANNUAL MEETING.

Very gratifying indeed to the Executive Officers, the Program and Entertainment Committees must have been the annual meeting of the Nebraska State Medical Association, April 24-27, at Omaha; for there was universal satisfaction with the program as carried out, the attendance the first session was unusually large and for the entire meeting the registration, 434, exceeded all previous records.

There was universal regret that President B. B. Davis was unable to be present at any of the sessions owing to the alarming illness of Mrs. Davis.

The classical papers of Dr. John B. Deaver, Philadelphia, and Dr. George Dock, St. Louis, were read to crowded audiences. Either of these papers was worth all the time and money spent by each member in attendance at the meeting.

Interest in the general sessions was greater than usual, probably largely due to the fact that the acoustic properties of the auditorium were improved by a floor covering that acted as a sound deadener.

The conference of county secretaries proved a remarkably successful experiment. The interest was keen, the discussions energetic, and results must follow in better organization work.

The House of Delegates was fortunate in the selection of Dr. A. J. Jenison, Harvard, as president, pro tem. His training in the legislature, a natural aptitude and a good voice, combined to produce an ideal presiding officer. System and dispatch were the order and the work of the house was easily accomplished. No matter of outstanding importance was before the house. A minor amendment was made to the by-laws increasing the salary of the chairman of the medico-legal defense committee, and a proposal to change the constitution relating to the organization of component county societies in some cases was offered.

Political scrambles there were none.

Dr. B. F. Bailey, Lincoln, was elected president for the year 1923, and Dr. Roy Fouts, Falls City, was named delegate to the A. M. A. The annual banquet was attended by over two hundred members and their guests and was followed by a ball in the same room.

The visiting ladies, more than the usual number, were royally entertained by the Women's Faculty Club, and the Doctors' Wives' Club.

DR. JOSEPH N. McCORMACK, THE GREAT ORGANIZER.

The passing of Dr. Joseph N. McCormack, Louisville, Ky., at the age of 76, is announced. Dr. McCormack was one of the few really great organizers in the medical profession within a generation.

He organized the Kentucky state board of health and was its executive secretary for thirty years. He was the chairman of the committee on reorganization of the A. M. A. from 1900 to 1910 and it was largely due to his foresight and energy that reorganization on the present basis became a reality.

Members of the Nebraska state medical association fifteen years ago will remember that Dr. McCormack spoke at a dozen places in this state and did a great deal to bring the profession together.

It was the privilege of the editor, then president of the association, to travel with Dr. McCormack two days and to learn to fully appreciate his worth.

One of his outstanding doctrines was that if there were in a county a physician ethically and morally somewhat "off-color", the county society should not for that reason refuse him membership; but should receive him as a member and at the next opportunity elect him president of the society, thus placing him on his honor to do right.

DR. JOHN B. DEAVER'S PAPER AND OUR FORMER PROVINCIALISM.

A new light has been thrown upon our State Medical Association meetings in that an effort has been made to pull us out of that old state of provincialism. The writer well remembers only a few years ago when he was soundly rebuked for suggesting to several men of this society that it would be a very beneficial change to ask well-known students of medicine from outside of our state to read papers before our annual gatherings. The result of such a policy was very well exemplified by the marked success of our meeting just past, where the largest of all previous registrations took place. The stone wall which had been erected about ourselves has been broken through, doing away with that older policy of allowing only members to read papers which resulted in that annual monotonous and unproductive gathering, resembling Andrew Lang's description of the inhabitants of the Scilly Isles, who, "earned a precarious living by taking in one another's washing."

Doctor Deaver's visit was a memorable one and never before have so many listened to a paper read before the society. This famous surgeon spent four days and nights on the train to deliver a paper, gratis, of the utmost benefit to humanity—he representing a true disciple of his calling. In these days of regionally retained surgery where every operator struggles to receive and never give, they must in some way express their appreciation of such valuable gifts of information. Nothing is so valuable as knowledge and nothing seems so cheaply obtained as medical information. As I listened to that master of human biology I became deeply impressed with a feeling of gratitude for the sacrifices he made to be with us. He represented one of those profound thinkers of acknowledged originality, who are not content to win the attention only of the initiates, but boldly set forth their doctrines in the language of everyday life, and in addition possess that rarest of all gifts of those who teach—the ability to make others think.

—C. A. Roeder.

THE CHANGING CONDITIONS IN THE PRACTICE OF MEDICINE.

That conditions are changing in the practice of medicine is a truism. The ability of an organization or a society or a profession to respond to a changing environment by appropriate reactions is a condition of progress, ultimately of existence, and there is no reason to doubt the ability of the medical profession to meet the exigencies of the present in such a fashion that they will subsequently appear as opportunities well and wisely utilized. Among the most, perhaps actually the most, important phenomenon of these latter decades has been the increase of knowledge in all fields. While this has been enormous as obtained by the efforts of individual and scattered investigators, the possibilities of collective research as borne in upon us by the Great War is a lesson not to be ignored and which is sure to affect the future of the basic medical sciences. It then becomes a problem of the present generation of practitioners to devise means, whereby the patient of today and of tomorrow may profit to the full from the increasingly elaborate and complicated means available for diagnosis and treatment. The problem is two-fold, for if on one hand no physician can hope to assimilate all the knowledge or acquire all the skill needful to utilize the resources of modern medicine, so on the other only a small portion of the community can afford to defray the expense involved in these manifold and often costly procedures. These conditions lead to specialization on the physician's part, but it is well to recognize that specialization is a process of limitation in many directions for the sake of increased competency in one. The whole peripheral vision may be sacrificed for the sake of the central focussed on the specialty. From the patient's standpoint there is need of integrating the work often of several specialists in one harmonious and continuous treatment, directed to the end of returning him to full efficiency or as near as may be to that ideal state. This end and the cost of reaching it is where the interest of the patient centers. If then the professional problem seems to call for some form of group practice in the interest of thoroughness, promptitude and efficiency, there is likewise need on the social side for some means of distributing the cost as widely as possible.

That the element of cost plays an important role in the thoughts of the public is amply evidenced by various essays and projects of employment of physicians by groups of patients or of prospective patients. The lodge doctor, the panel doctor, the industrial surgeon, health insurance programmes and even the socialization of medicine are all expressions of this motive. Thus the group idea arises naturally among physicians as a result of the successful and rapid development of medicine and its ancillary sciences, and with equal inevitableness though for different reasons the public are thinking of some form of collectivism. Strictly speaking none of these problems is new, nor are the diverging views and interests to be composed peculiar to our day. Specialism was rampant in Egypt, group practice not unknown to the Greeks; for many of their so-called schools were but a group of young men studying and serving about a chief who in modern parlance might perhaps be called a Captain of Medicine. Nor was the patients' side overlooked; in the laws of Hammurabi were statutes regulating the charges practitioners and it is interesting as illustrating the persistence of feeling on this point, that the earliest medical legislation in the American Colonies was a Massachusetts act regulating medical fees. From two quite different standpoints and with diverse, but not of necessity antagonistic motives the group idea has arisen, been widely discussed and variously attempted in our times, and it would seem to be the task of medical statesmanship and an urgent one to devise a form of group practice that will meet high professional standards and at the same time be within the reach of patients of modern means. Between the family physician, may he long prosper in the profession which he adorns—and the extreme of State Medicine there is room for more than one type of group practice and more than one form of social understanding, but the most propitious combination would seem to be one which offers the fullest and freest cooperation between the community and the medical profession.

The community contributes to the hospital either directly through taxation or by the philanthropy of its religious bodies or charitable citizens and the profession supplies an organized staff, the members of which engage to work harmoniously together, to pool their information and combine their skill in the service of the sick in the hospital. The hospital is the expression and symbol of the pity of the community so is it too much to ask that the members of the medical profession forget their individualism within the hospital and make common cause in a work of mercy? If the doctor forgets sometimes, the community does not forget that the art of medicine is a collective achievement, the work of countless investigators and numberless students, who have been actuated by any but commercial motives. The community remembers that medical education is given below cost to medical students and directly or indirectly at the expense of the community. The man in the street is wholly unable to appreciate the sensitiveness of doctors in their professional relations and is prone to resent a difficulty of temperament which he considers effeminate and unworthy of men devoted to a high calling, for such he considers medicine to be. Above all he fails to comprehend the use of medical politics. He is accustomed to team play himself and expects it of others. That physician does not serve his profession well today, who whether from pride or fear, or greed, fails in cooperation with his fellows in the performance of the task which society has entrusted to him. Society has its remedies, which may be worse than the disease, but it dares to use them, and the profession of medicine is now under criticism and meeting competition as never before. His best defence is in its scientific resources and spirit of service. The doctor who lives up to such unworthy apothegms as "this is a commercial age" or "competition is the law of life" misreads the times. We are a nation of idealists and we know that the basis of medicine is sympathy and the desire to help others.

—H. Von W. Schulte.

THE ADMINISTRATION OF THE SHEPPARD-TOWNER ACT IN NEBRASKA.

This Act was passed by Congress and approved November 23rd, 1921. The title of the Act is as follows: "AN ACT For the promotion of the welfare and hygiene of maternity and infancy, and for other purposes."

Section 4 of this Act authorizes the Governor to accept its provisions for a period of time ending six months after the adjournment of the first regular session of the

Legislature following the passage of the Act. On February 8th, 1922 Governor McKelvie, acting in accordance with the above named section, formally accepted the terms of this Act and designated the State Department of Public Welfare as the administrative agency and the State Treasurer to act as custodian of the funds.

In March, 1922 Congress passed appropriation measures which carried, among other items, the appropriation for carrying out the provisions of this Act for the fiscal year ending June 30th, 1922, and the fiscal year ending June 30th, 1923. Under these appropriations there is available from the Federal Government to the State of Nebraska for the fiscal year ending June 30th, 1922, $7,924.66 and for the fiscal year ending June 30th, 1923, $18,743.21.

During recent years the various Divisions of the Bureau of Health and the Bureau of Child Welfare have been doing work along the lines contemplated in this act, as an illustration almost all of the work of the Division of Vital Statistics. This is a work that is very necessary under the Sheppard-Towner Act. The present state appropriations for the Divisions of the Bureau of Health and the Bureau of Child Welfare for the biennium ending June 30th, 1923 contain ample funds to match all of the Federal money allotted to Nebraska. The appropriated funds referred to have been used and are being used absolutely in accordance with the provisions of the Sheppard-Towner Act so that the opening of this new Federal-State aid activity does not necessarily mean that the next session of the Legislature will be asked to make an increased appropriation to carry on the work.

The plans submitted from this state in accordance with Section 8 of the Act have been formally approved by the Children's Bureau. These plans provide for the division of the state into five districts, each district to be in charge of a thoroughly trained worker whose duty will be to assist in organizing and promoting child and maternity health conferences and centers in each county of the state, working through and in conjunction with the present established agencies in each locality, as for instance the local medical profession and the public health nurse in those communities where there are such nurses, the various women's clubs, Parent-Teachers organizations, Community Centers, etc.

This Bill is essentially an educational measure. Through the above agencies it is contemplated to carry on this educational work by means of bulletins, leaflets, lectures on prenatal and maternal care and the care of infancy, moving picture films, etc. This Act definitely prohibits the giving of material relief. Section 12 of the Act reads as follows:

> "Sec. 12. No portion of any moneys apportioned under this Act for the benefit of the States shall be applied, directly or indirectly, to the purchase, erection, preservation, or repair of any building or buildings or equipment, or for the purchase or rental of any buildings or lands, nor shall any such money or moneys required to be appropriated by any State for the purposes and in accordance with the provisions of this Act be used for the payment of any maternity or infancy pension, stipend, or gratuity."

—I. H. Dillon

CRANIAL AND INTRACRANIAL LESIONS.

On April first, the Lancaster County Medical Society had as its last guest of the season Dr. Cassius Rogers, professor of surgery at the University of Illinois college of medicine. Dr. Rodgers' subject was "Cranial and Intracranial Lesions." He first described the anatomy and physiology of the brain, stating that we must forget practically all that we had been taught on this subject. The war surgeons had definitely proved, due to the immense number and variety of head injuries, that Broca's convolution is not the centre for motor speech, that the intellectual centre is not where it was supposed to be in the frontal lobes, and that the motor areas as we know them are the only part of the brain that still stands up, where the other centres are has not yet become definitely known.

Passing to head injuries, Dr. Rogers first spoke of fractures. If they produce no symptoms let them alone. If a vault fracture produces symptoms elevate it. If the fracture is through the base and hemorrhage occurs, its external appearance will depend on the position of the fracture. The blood will show at the ear if the petrous portion of the temporal bone is fractured and at the nose if the sphenoid is injured. If this occurs one or more sinuses will fill with blood. If so drain the sinus in question. If the hemorrhage is from the ear the mastoid fills and it should be drained. When this is not done these cavities fill with clotted blood which becomes infected.

Next Dr. Rogers spoke of subdural and intradural injuries, describing them as to symptoms, course and pathology. His chief symptoms were temperature, pulse, respiration, blood pressure and spinal pressure. The spinal pressure must be taken with a spinal manometer, and its relation to the blood pressure watched. If both remain high the patient is not beyond hope, but if the blood pressure falls suddenly and the spinal pressure remains high the patient is in a dangerous conditions. Spinal drainage will improve the condition of the patient with an intradural injury but it will at least do no good and may do harm to the patient with a subdural injury because the lowering of the pressure allows the hemorrhage to increase. Patients do not die from hemorrhage, they never bleed enough, but they die from a cerebral anemia due to the fact that the hemorrhage raises the pressure to such an extent that the blood is squeezed out of the brain. If a cerebral hernia occurs let it alone, even permanently, if necessary.

Dr. Rogers used many slides to illustrate his subject. He spoke for two hours and twenty minutes, and everyone present regretted when he had finished. All agreed that his paper was one of the finest that they had ever heard. —R. B. Adams.

EDITORIAL PARAGRAPHS.

During the past two years district medical societies have been organized in all but four councilor districts in the state. Following a by-law never before called into use, the vice presidents elected at the recent annual meeting were selected from the presidents of the district societies. The provision of the by-law (Chapter 4, Sec. 6) reads: "When so organized (the district societies) from the presidents of such district societies shall be chosen the Vice Presidents of this Association."

In the May number of Minnesota Medicine Dr. E. L. Twohy of Duluth reports a case of Milroy's disease. In 1892 at the annual meeting of the Nebraska State medical society held at Omaha, Dr. W. F. Milroy, Omaha, read an exhaustive paper on "An Undescribed Variety of Hereditary Oedema." Thirty years have elapsed. This is the first time the editor has noticed Dr. Milroy's name in connection with the disease, and he is sure the profession will be proud to know of the recognition accorded an honored member of the association.

The Women's Medical League of Nebraska is planning a fall meeting with a scientific program. Dr. Margaret Koenig, Lincoln is president of the organization. The committee on program consists of Dr. Mattie Arthur, Omaha, Dr. Daisy Hansen, Lincoln, and Dr. Ada Platz, Beatrice.

Following up the cancer campaign of last October in Nebraska, another campaign is to be featured in November of this year. The profession will be interested to learn that the cancer campaign conducted in Nebraska last year was rated by the American Society for the Control of Cancer as among the very best conducted in the several states.

The American Medical Association of Vienna, officially reports to the Journal that the grossest discrimination is being practiced in the Viennese clinics against American doctors in the matter of fees; in some instances as much as forty times as much being demanded from American physicians as from Austrian physicians, and ten times as much as is asked any other Europeans.

The Nebraska Academy of Science held its annual meeting April 21 and 22. Medical men on the program were Dean H. von W. Schulte, "The Development of the Salivary Glands in Mammals"; Dr. M. J. Breuer, "The Philosophy of Diagnosis"; Dr. C. F. Ballard. "As a Race. What Shall We Do to be Saved?"; Dr. Paul Black, "Speech Defects."

THIRD ANNUAL POST-GRADUATE COURSE.

The University of Nebraska College of Medicine announces the Third Annual Post-Graduate Course for Practitioners which will be given at the University Hospital, June 19th to 30th inclusive. The course will consist of clinics, ward walks, demonstrations and lectures covering an intensive review of medicine and surgery. Modern methods of treatment and diagnosis will be emphasized. The courses in diagnosis will cover medical and surgical conditions. Urological cases and the modern treatment of syphilis will be demonstrated.

Legally qualified practitioners of medicine, resident in Nebraska, are eligible for registration. The fee for the course of two weeks is forty dollars.

THE DR. RATHBUN CASE.

Disease Caused by Injury—Total and Continuous Disability of Surgeon

(Rathbun v. Globe Indemnity Co. (Neb.), 184 N. W. R. 903)

The Supreme Court of Nebraska, in affirming a judgment in favor of the beneficiary of an accident insurance policy issued to a physician and surgeon, (The late Dr. G. H. Rathbun, Fremont), says that the insured, in alighting from his automobile, either from a misstep or slipping on ice on the pavement, fell, striking his right hip on the pavement or on the curb. For the next two or three days, he suffered severe pain in the hip. Then he had a respite of two weeks from any conscious ill effects from the injury, during which time he attended to the most, if not all, of his professional duties as a surgeon. At the end of that time, the pain and lameness returned and continued with increasing severity for about two months and a half, during which time he performed some of his professional labors, but under more or less stress of pain and discomfort, being compelled to have his assistants do many things in the course of operations on patients that theretofore he had always been accustomed to do himself. After that, he gave up any attempt to perform any duty, because of pain and suffering from the injury, which increased in severity until about six months after the accident he died of sarcoma involving the hip joint, which the evidence conclusively showed was the direct and immediate result of the accident.

The insurance policy contained this special provision: "This policy does not cover . . . loss resulting from bodily injury caused or contributed to, directly or indirectly, by disease, or vice versa." The defendant interpreted the "vice versa" provision to mean, "This policy does not cover . . . loss resulting from disease caused or contributed to, directly or indirectly, by bodily injury," and contended that this prevented a recovery on the policy. But it seems to the court that a theory which inevitably leads to such damaging results to the insured as this would is so unreasonable, absurd and destructive of the very object and purpose of the contract, as well as the manifest intention, or at least supposed manifest intention and understanding of the parties who entered into it, that such a construction cannot be allowed; and, if the language of the provision is susceptible of no other construction, that the provision itself cannot stand. Wherefore, being of the opinion that in this instance there was no alternative, the court holds the "vice versa" clause inoperative and of no effect.

Another point required to be determined by a clause in the policy and the contention of the defendant, was as to when one insured sustaining an injury through accident may be said to be rendered "totally and continuously unable to transact all business duties from date of accident." Surely the defendant would not contend that it was entitled to an absolutely literal construction of the clause in question, and that the performance, by the insured, of anything whatsoever in the line of his business, or professional duties, no matter how trivial, or under what circumstances it may have been performed, would bar recovery. Such a claim would be unreasonable, even absurd. To illustrate: Suppose the insured had been confined to his bed, unable to rise therefrom because of the severe pains and lameness he was suffering from the injury, yet under these conditions he might still be able to consult with and prescribe for patients, and even perhaps have dressed a wound, and suppose that he had done so, would the defendant or any one say that for that reason he was not a subject of "total disability," under a proper and reasonable construction of those words in the policy? The court thinks no one could contend for a thing so unreasonable. Recurring to the two weeks in which the insured suffered little or no pain and there was little or no interruption in the prosecution of his ordinary professional labors, the defendant contended that that fact itself conclusively showed that he was not "continuously unable to transact all business from date of accident," and precluded a recovery; but this point also, the court holds, could not be sustained. When the real nature and extent of injuries do not at once reveal themslves, but the injured part apparently lies dormant for a while, it cannot be said that the injury is not continuous and from the date of the accident, nor can it fairly or justly be said that the disability is not continuous and from the date of the accident, because the injured party enjoys a brief respite from pain and suffering; and, under the circumstances stated, to hold that a brief respite during which the insured was able to transact the most, if not all, of his ordinary business should bar a recovery seems neither reasonable nor just.—Journal A. M. A.

THE SOCIETIES.

The **Republican Valley and Tenth Councilor District Medical Society** met at Cambridge May 25. Drs. Kee, McCabe and Stewart of Cambridge were hosts at a 6 o'clock dinner and musicale. The scientific program follows:

"Acute Head Injuries and Fractures of the Skull," Dr. C. A. Hull, Omaha; "Vertigo," Dr. A. L. Marstellar, Wilcox; "Diaphragmatic Hernia," Dr. J. R. McKirahan, North Platte; "Injuries to the Eye-Ball," Dr. J. B. McPherson, Hastings; "Modern Measures," Dr. Czar Johnson, Lincoln; "Roentgen Examination of the Maxillary Sinus and Its Relation to Infected Teeth," Dr. L. W. Rork, Oxford; "Emergency Surgery," Dr. J. V. Beghtol, Hastings; "Clinic", Drs. Kee, McCabe and Stewart, Cambridge; "The Patient," Dr. S. J. Jones, Hastings.

The **Jefferson County Medical Society** met at Fairbury, in the Chamber of Commerce rooms Friday evening, April 14. There was a good attendance of members and four visitors. Dr. W. O. Colburn, of Lincoln presented a paper on, "The Backward Child". The paper was ably written and of unusual interest to all present and freely discussed. Dr. Newell of Alexandria and Dr. Caulk of Reynolds were additional out-of-town visitors.

The members of the **Lincoln Eye and Ear Society** were the guests of their fellow member, Dr. S. E. Cook and Mrs. Cook on Monday evening, April 17, 1922. A six course dinner was served as Mrs. Cook's tribute to Doctor Cook's birthday anniversary. After dinner, Dr. W. L. Albin read a paper on "Nasal Neuroses." The paper caused a very interesting discussion among the members. After the close of business, Dr. J. P. Williams sang a number of selections with Dr. F. F. Teal at the piano.

The second quarterly meeting of the **Phelps County Medical Society** was held at Bertrand, Thursday, April 20th, at the home of Dr. and Mrs. Schreck.

Dr. and Mrs. Schreck, and Dr. and Mrs. Guy Clark entertained the members and their wives at a delicious four course dinner in the evening.

Following the dinner, "A Case of Tetanus Following Measles" was presented by Dr. Schreck.

Phelps County has a one hundred per cent membership of all eligible physicians this year and a fine attendance at all its meetings.

The **Cedar-Dixon-Dakota-Thurston-Wayne Counties Medical Society** met April 19, at Wayne. There was a good attendance. The principal paper was read by Dr. John Buis, Pender on, "The Intestinal Drainage Tube in Operation for Intussusception."

Arrangements are being made for a picnic at Crystal Lake, any subjects to be open for discussion except medical subjects.

The **Scottsbluff County Medical Society**, held its monthly meeting April 18th, at Scottsbluff.

The society tried the plan of general discussion of a chosen subject. Leaders for subdivisions were appointed who presented the topics very well. Influenza was studied. The following subdivisions were taken up.

"History," W. C. Harvey, Gering; "Etiology," E. J. Mitchell, Scottsbluff; "Pathology," F. B. Young, Gering; "Symptomatology," N. H. Rasmussen, Scottsbluff; "Complication and Sequlae," F. W. Plehn, Scottsbluff; "Treatment," A. J. Stewart, Mitchell.

The subject was thoroughly discussed by all present. This type of meeting was approved by all and the society decided to take up the study of Pneumonia, at the May meeting.

The **Custer County Medical Society** met at Broken Bow, May 2, fifteen physicians being present. Dr. H. B. Boyden, Grand Island, was the special guest and spoke on the acute abdomen. Dr. C. L. Mullins spoke on "Some Differential Points in The Diagnosis of Some Blood Diseases." Dr. C. D. Spivey, Anselmo, and Dr. J. D. Wilson, Broken Bow, also presented papers.

The **Saunders County Medical Society** meets regularly the second Thursday of the month. The June meeting will be at Cedar Bluffs, on the 8th, Dr. F. T. Wright, Ceresco is president, and Dr. Frank Tornholm, Wahoo, secretary.

For Sale or Exchange—Twelve bed, two story, brick hospital. Good office and living rooms, in good town northeast Nebraska. Fine farming country. Collections excellent. No competition. Address Nebraska State Medical Journal, Omaha.

NOTES ABOUT THE DOCTOR.

Dr. John Mayer, Osmond, suffered a paralytic attack recently.

Dr. Parke A. Lillie, recently from Idaho, has located at Seneca.

Dr. G. W. Meredith, Lincoln, is seriously ill at a hospital in Omaha.

Dr. J. I Limberg, Walthill, is taking special work in surgery, in St. Louis.

Dr. J. L. Cook, formerly of White Lake, S. D., has located at Fremont.

Dr. and Mrs. H. A. Skelton, Spencer, spent the winter at Hot Springs, Ark.

Dr. P. D. Kelly, has recently returned to Nemaha from Marquette, and is again in practice.

Dr. F. J. Kotlar, for a number of years a physician at West Point, has located at Snyder.

The profession sympathizes with Dr. J. E. Gelow, Grand Island, in the loss by death of Mrs. Gelow, April 29.

Dr. J. H. Linson, a major in the army medical corps stationed at Washington, visited relatives in Wayne, in May.

Dr. Peter McHugh, Ft. Collins, Colo., and Dr. P. P. Ewald, Lead, So. Dak., were recent visitors in the Journal office.

It is reported that Dr. C. P. Fall, Beatrice, will be a candidate for congress in the Fourth district on the democratic ticket.

Dr. S. R. Towne, Omaha, was reelected president of the Nebraska Tuberculosis association at the recent meeting held in Omaha.

The Grand Island Clinic has been organized with Drs. W. W. Arrasmith, A. H. and E. E. Farnsworth, W. H. Hombach and D. A. Finch as members.

Dr. A. F. Johnson, Gresham, sold his property and other interests to Dr. W. N. Hylton of the same place, and will retire from the field July first.

NECROLOGICAL.

Dr. Leonard DeVore, South Sioux City, Drake university college of medicine 1886, died April 9, aged about 78. Dr. DeVore was an early day physician at Ponca where he labored for twenty-five years. Some years ago he published a book, "A Boy in the Wild West."

Dr. Seymore H. Smith, Omaha, Omaha medical college, 1898, died April 18, after a year's illness, aged 53. He had been a member of the surgical staff of the Union Pacific since his graduation.

Dr. Burton B. Norall, whose home was at Overton, a graduate of Nebraska University College of Medicine, 1921, house physician at the Children's hospital, Minneapolis, died at the institution of septic sinus thrombosis, April 18, age 27.

Dr. Edwin M. McGee, Keokuk Medical college, 1882, until within the last two years a practitioner at Tecumseh, died at his home at Ceres, Calif., in April, aged 66.

Dr. H. M. Bailey, Bushnell, Cincinnati college of medicine and surgery, 1891, died suddenly, April 20, aged about 65.

BOOK REVIEWS.

The Physician Himself. By D. W. Cathell, M. D., Baltimore. Cloth. 360 pps. Crowning Edition Published by the Author. Price $3.00.

This book is intended as a heart to heart talk with the physician on the scientific and personal sides of the profession. The writer read one of the early editions of the Physician Himself more than thirty years ago, and has always thought it a wonderfully helpful book. The work has been entirely rewritten and brought up-to-date. One cannot feel quite sure that the work has improved with age and additions.

Every physician should read it.

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MALIGNANT DISEASE FROM THE STANDPOINT OF THE PHYSICIAN AND WITH PARTICULAR REFERENCE TO BORDERLINE CASES.*

By George Dock, M. D., St. Louis, Mo.

This is an age of drives for all sorts of purposes, and among others we have a cancer drive. The object of this is to spread sound knowledge of malignant disease among the people, so that early recognition can be secured, and thereby earlier treatment, with increased chance for recovery.

No one can fail to recognize the great need of such enlightenment, but I think we should be very careful how we carry on the campaign. The struggle must be a long one because a new audience is constantly coming on and the work must be patiently repeated. It is therefore well to consider the details before we get too far. The task has many difficulties, and we must recognize them as clearly as possible, and learn how to overcome them, before we can be even fairly successful. Those who recall the early days of the tuberculosis campaign will remember that many mistakes were made. In teaching infectiousness we set up an exaggerated fear of the disease that still exists among many people and causes much unnecessary trouble. I often have reason to question whether we have even yet accomplished what we should in teaching the lesson of recoverability, as well as the chief details of the modes of recovery from tuberculous disease.

The matter of explaining the nature of malignant disease to people without training in biology is one filled with difficulties. Even in the case of tuberculosis that was so, and yet the idea of tuberculosis when we began the drive against it was very much simpler than that of malignant disease. Our ignorance of the etiology of malignant disease offers a great obstacle to popularization of knowledge, and in the work now being carried on by so many brilliant investigators, those who have to teach the public must use extreme caution in order to avoid premature or erroneous announcements.

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*Read before the Nebraska State Medical Association, Omaha, April 27, 1922.

I think I can see already an unfortunate issue of the campaign. The old and general term cancer is used to include all malignant disease. This is convenient, but often leaves the important question of degree of malignancy ignored, so that statistics are likely to be misleading and therapeutics confused.

Under these circumstances the physician who enrolls himself for the campaign, and all should so enroll themselves, should train himself to be as efficient as possible in the necessary duties. Some of these duties need not be detailed now, but an important one, I take it, is for each one of us to try to propagate the most solid, plain and essential facts in our work among patients or in meetings held to increase popular knowledge of the subject. Not less important is the cultivation of the most careful, complete and accurate diagnostic methods in our daily work as physicians or surgeons.

People should be taught, as private patients, friends or members of audiences, that early recognition is the sine qua non of successful cancer treatment. We must train people away from the old habits of concealing a suspicion or a fear; of trying to ignore the painful lump, or of using mechanical manipulations. We must plainly admit that in some cases the ordinary methods of examination fail in exactness or certainty, and that it is essential to make exploratory or diagnostic operations of greater or less degree in order to avoid delay that may be fatal.

With or without a suspicion of malignancy in the patient's mind, each one must be looked on as a potential malignant disease subject. There is great activity among investigators to find diagnostic signs of malignant disease. We should indeed pay careful attention to the results of such studies and apply them to our own work. But in the great majority of cases we see in practice, careful attention to the history will show that a strong suspicion should have been raised many months before the special procedure would be promising. The practicing physician, therefore, no matter how much he may be interested in participating in the search for diagnostic signs, should be alert to recognize the suspicious facts in the history and to carry on the further steps necessary to a working diagnosis.

The need for promptness in recognizing suspicious signs and for celerity in acting upon them is based on the nature of malignant disease. One feature of that is that the disease does not as a rule, remain local, but invades adjacent tissues or distant parts of the body and this invasion is sometimes very early and very rapid. If a benign process, such as fibroid, is allowed to go on after it can be recognized the dangers are chiefly mechanical. It may require a longer incision for removal, or adhesions may form, or blood may be lost, or a pedicle become twisted. But at any time a cancer may permit distant and inoperable metastases to form.

A striking example was shown by a patient admitted to my wards with pain in muscles and joints, which had been called neuritis and anemia. This patient was a woman forty years old, single, who had not menstruated for four years. She had arthritis, called rheumatism, at 14 and many attacks since and at 18 began to have dyspnea and pain in the heart region. Four years before admission she discovered two lumps in the right breast, about the size of the end of a thumb. Later they seemed to grow together; the skin over them was at times red. Hot baths and medicine proved of no avail. She lost 50 pounds in the last two years. From the history a diagnosis of carcinoma of the mamma and bones; anemia; chronic arthritis and probable chronic endocarditis was made.

Physical examination showed marked pallor and emaciation; fading subcutaneous hemorrhages on the feet, enlarged glands in the neck and axillae; a small but bone-hard irregular mass in the right mamma, adherent to skin and deep tissues, with a hard cord the thickness of a finger connecting it with the axillary glands; the nipple retracted. The heart was slightly enlarged, with systolic murmurs in the mitral and aortic areas. There was hard edema of the right leg, with soft edema of the dependent parts of the body and legs. The spleen extended to the level of the umbilicus and the left nipple line; the liver three finger breadths below the costal margin.

The blood on admission was thin and watery; red blood cells, 685,000; leucocytes 29,400; hemoglobin 20.

Differential count: Lymphocytes	32.5
Large mononuclears	4.5
Polynuclear neutrophiles	34.5
Myelocytes	4.
Unclassified	3.5
Normoblasts	17.
Megaloblasts	4.

There was marked polychromatophilia; anisocytosis, poikilocytosis. The polynuclears showed great variations in size and many abnormal nuclei. The whole blood picture was that of advanced secondary cancer of the bones, quite different from the simple anemia from ulcerating carcinoma.

The Roentgenograms of the bones showed widespread mottling, with long areas parallel to the axes of the long bones both in the epiphyses and diaphyses. In the flat or irregular bones the areas were round. There were no changes in the periosteum or in the size of the bones. The upper fourths of the tibias and fibulas were involved and also those of the radii and ulnas; evidence of an advanced stage in the process.

In consultation with Dr. Evarts A. Graham it was considered useless to attempt operation, but worth attempting X ray treatment. This was carried out with the assistance of Dr. Sherwood Moore, who made exposures over bones and mamma. The cachexia, edema, blood count and subjective sensations improved, but the bone changes progressed, as shown by X ray examination. After four months the symptoms became worse, though the pain was relieved by X ray exposures. The edema became more marked than on admission so that serum exuded from hypodermic punctures. Death occurred six months after admission. Autopsy was refused by the relatives notwithstanding extensive efforts to show them the importance of accurate information for the family history.

In this case there were a number of interesting points. The relatively small size of the primary growth with the extensive metastasis is not an uncommon feature of mammary carcinoma. I have seen one in which the primary growth was no larger than a cherry, and almost impossible to find in the large firm mamma, but with secondary masses up to the size of a fist in the liver and many smaller ones in other organs. The long course is interesting in comparison with the strong tendency to metastasis.

The case illustrates the tendency of mammary carcinoma to affect the bones, occurring in 40 per cent of cases according to some statistics, and recalls extensive work done in the spread of carcinoma of the bones by pathologists. Why it should spread in some cases chiefly to the subclavian and axillary lymphatics, in others to the intercostal and subpleural ones, in others by the skin and fasciae, and by various routes to the bones, are absorbing puzzles that remain to be solved.

The X ray examination of the bones and the blood picture are highly characteristic and we can easily assume the correctness of the prevailing view, that metastases occur in the bone marrow, in the vertebrae, sternum and ribs, destroying the functionating red marrow. New formation of red marrow is then stimulated as a compensatory process, first in the proximal ends of the proximal long bones, and then progressing distally, each area of new formed marrow serving again as a focus for cancer implantation. The occurrence of fractures or their absence is a curious feature, but one I shall not discuss further. Its absence in my case was noteworthy. The most important practical lesson in the case, I think, is the need for early removal of the primary focus of malignant disease.

Cancer of the mamma at the present time does not come so often to the attention of the general practitioner or the internist as it did a few years ago, because many women know that it is a surgical disease. Cancer of the stomach, or of other parts of the alimentary canal, however, is still chiefly brought first to the medical man, who has a serious responsibility, partly because cancer of the stomach is the commonest form of malignant disease, and partly because of the great advances in our knowledge of gastro-intestinal disease in general, including that of peptic ulcer. In many cases it is latent or sets up secondaries so early that radical treatment is out of the question, but in many others, and I believe the majority, time and often life could be saved by more direct methods of work than are usually applied in the early stages. In order to do this we must have an accurate and thorough acquaintance with the many and various clinical pictures under which cancer of the stomach appears and with the diagnostic methods that must be applied.

Most striking are those in which the symptoms come on suddenly in people who before were free from dyspeptic manifestations. The frequency of this picture is often underrated. Thus Smithies speaks of but 31.9 per cent of cases with a sudden onset. He is certainly correct in saying that some of these patients might have forgotten previous dyspeptic symptoms, but if nearly one third of patients with cancer of the stomach give such history, it seems to me a rather large proportion. Like other cases these are most common in people between the age of forty and seventy, but may happen under forty, even before thirty or twenty, so that one should never exclude the diagnosis on the ground of youth alone, as is often done.

The sudden onset in a person with good digestion previously is often attributed by the patient to an error in diet or drink and this is accepted by the physician. The coincidence is often striking, but if one follows up the case under treatment, residual symptoms will be found to persist, as they never should in acute indigestion after a proper treatment has been carried out.

The early symptoms in such cases are of course not diagnostic, but they should always excite suspicion. The most important are pain, usually less severe and less localizable than in ulcer or in gall stone disease; vomiting, or more often eructation of tasteless or bitter or sour liquid; rarely coffee ground, but always suggestive when so. Along with these may be weakness, anemia, loss of appetite, difficulty in swallowing, with the obstruction referred to the cardia; loss of weight, sometimes slight, sometimes extreme. Sometimes hemorrhage, rarely the discovery of a tumor, is the first symptom noticed.

It is a great but common error in such cases to begin treatment, dietetic or otherwise, without careful examination of the stomach with direct reference to cancer, for only too often the disease is already well advanced.

Besides a complete history, the important things are complete physical examination, examination of gastric contents and X ray examination. In the physical examination the chief part is the inspection and palpation of the abdomen, which must be painstaking and thorough. Often enough inspection shows increased and visible peristaltic motion, indicating pyloric obstruction, and almost as often a visible or palpable tumor, immediately suggesting surgical view points.

The examination of the gastric contents is still a source of misunderstanding. Many at once order a test meal, titrate the acidity and make much of the presence or absence of free HCl. This seems unaccountable when we consider the many conditions in which HCl is absent from the stomach without cancer, and that cancer may be present with even high free HCl. The results are especially misleading if, instead of the ordinary stomach tube, a duodenal tube is used for withdrawal of the specimen. Valuable as was the introduction of the smaller tubes they are not adapted to the examination of cancer suspects and I have repeatedly seen reports stating "no retention, no sarcines, yeasts or bacilli" repeated for two or three days when a large tube passed immediately after revealed meat, vegetables and fruit from the day before, as well as large quantities of other debris, including yeasts and Oppler-Boas bacilli. Sometimes painstaking search reveals a few bacilli that are thought to be those of Oppler and Boas, though the latter are remarkable for occurring in such large numbers as are never seen from contamination from the mouth or throat, and in numbers alone are almost diagnostic.

If we consider the effects of cancer of the stomach a simple but important modification of the method of examination commends itself. If the cancer has reached a definite size it affects the motor power of the stomach in some way. It may cause obstruction of the pylorus, with retention and decomposition. In this case the decomposition is usually associated with lactic acid bacilli, possibly yeasts but rarely contains sarcines. Even if the neoplasm is small there is likely to be a place in the stomach that from rigidity or unevenness will not keep itself clean, and there will result what might be called microscopic retention—growth of bacteria, again of lactic acid bacilli, sometimes even protozoa.

All these are most easily demonstrated by examining the fasting contents, but this can often be substituted by taking the contents as they are at the first examination, noting the food previously taken and the time elapsed since it was taken. The contents should be withdrawn by a large tube, without using water in the beginning, then the stomach washed with small quantities of water until clean. The contents should be examined at once, first microscopically. In this we look for food remains. If we find meat eaten before the last preceding meal, or any other recognizable tissue showing a long interval, we know there is retention. If we find the characteristic bacilli of Oppler and Boas, we know the retention is of a peculiar kind, probably carcinomatous. Protozoa also give confirmatory evidence of a peculiar form of retention. The chemical conditions are then noted and checked up by the odor of the contents. Small amounts of lactic acid may come from food without special causes, but large amounts usually are associated with large numbers of bacilli and confirm the suspicion of cancer. Bits of tissue may be found in the washing and should be examined microscopically, but no time should be lost on account of their absence.

There is a useful detail in the examination with the stomach tube that is often omitted, and I think unwisely. I refer to the distension of the stomach, to show its position, size and shape, and the relation of a tumor to it. This is often omitted because X ray examinations show a different shape from that commonly understood before we used X rays. But the difference is due to position of patient and material used for filling, and need not be a source of error. It is easy to distend the stomach with air by a blood pressure pump, just enough to see and feel, without danger and discomfort. I avoid CO_2 however, as it is unmanageable.

This whole operation takes less time to do than to describe, and may at once give an exact diagnosis. If not, a test meal may be given, including retention tests, and a formal series of tests made.

It must be admitted that the stomach tube rarely furnishes an early diagnosis, but this depends partly on the fact that it is rarely used early. If the growing interest in malignant disease advances as it should, we cannot doubt an increased accuracy in the recognition of early changes in stomach activity and so an early detection of cancer.

An essential means of advance is furnished by X ray examinations, which should be applied to patients with dyspeptic symptoms much more freely than they are. In many cases they can be used at the first suspicion, and as the experience of my friend and colleague, Dr. R. W. Mills, shows, can detect a carcinoma of very small size, in one case no larger than half a pea. In other cases, where other methods have failed, but the patient does not make a satisfactory gain under treatment, a fluoroscopic or skiagraphic examination should be made by an expert as early as possible. When the diagnosis by these measures is strongly suggestive, surgical consultation should be had and the problem presented to the patient.

Sometimes all measures thus far described fail, but the patient still exhibits symptoms. In such cases exploration is indicated, with all the possibilities explained to the patient.

The finding of a tumor as one of the first evidences of cancer of the stomach is still too common, for the tumor is usually found only after it has reached considerable size, with the probability of metastasis already in existence. Tumors in the neighborhood of the stomach, and this means almost anywhere in the abdomen, should be investigated as early as possible. Long observations of any kind, and especially those on the gastric contents, should not be planned except under special conditions. A prompt examination of the contents as described before should be made, then if possible an X ray examination, quickly followed by operation.

Some errors regarding the indications for operating in malignant disease should be discussed. I think much harm is done by a common mode of using statistics in such cases. A more or less complete list of reported or new cases is given, with the mortality with and without operation, sometimes with the duration of life in operated cases. These statistics are of course all more or less unfavorable. The diagnoses in many were made late, complete extirpation was often impossible. An honest surgeon, especially if well known, must accept many bad cases. I think it is much more useful to consider the good results in cases that do well, for without either operation or some other radical treatment only death can be expected. From time to time nonoperative treatment is devised and recommended. We may take X rays and radium as examples of these and consider them briefly before taking up operations. That these agencies can destroy malignant tissues of various kinds I have no doubt, but from our present knowledge I do not think they should ever take the place of a surgical operation if the process is operable. They should be used then to treat suspicious areas. In inoperable cases they should be used extensively, partly to relieve pain, partly with the hope of destroying cancer cells, and from such experiences I feel sure we shall get many useful lessons in regard to using them early, rather than operations. Dr. R. W. Mills, who has had an unusually large and encouraging experience with radium treatment in cancer of the esophagus, controlled by the fluoroscope, emphasizes the importance of such cases, as yet not accepted for radical treatment by surgeons.

Some important points regarding what cases are operable need consideration. In the past some criteria have been advanced that certainly do not deserve the importance that has been given them. One was size. It is often said that a tumor of the stomach that can be made out by inspection and palpation, or that has reached a given size, is inoperable. In the reports of X ray operators we often see the note: inoperable tumor of stomach. I take the ground that the only way to know whether a tumor is operable is to try to remove it by operation at the hands of a skillful surgeon. Some cases will then prove inoperable either from secondaries in turn inoperable, or from conditions making restoration of lumen impossible. Of course I do not consider technical shortcomings of the operator or lack of boldness, but these must be borne in mind in some cases.

A recent example was that of F. T., aged 63, admitted on account of loss of appetite, loss of weight, pain recurring in epigastrium with reference to food. His symptoms began six months before admission and he lost 29 pounds in a few months. On admission he complained of gas on stomach, sour taste in mouth. Pain was felt deep beneath the xiphoid and in the left upper quadrant. It was sharp and tearing and was relieved by taking food and by sodium bicarbonate. He was occasionally nauseated, but did not vomit. Never noticed signs of blood in stools. Consulted many physicians, and at the advice of one took X ray treatment by an experienced operator, but stopped because the pain seemed worse.

Physical examination showed pyloric obstruction with peristaltic tumor, but no mass. Large tube passed and 200 cc. of undigested food from the day before, or earlier, were obtained at once. No recognizable exudate or tissue. Large numbers of bacilli, often joined, forming angles, were found, but no sarcines or yeasts. Lactic acid test suggestive. No free HCl. Distension with air showed stomach high up. Diagnosis: Carcinoma of stomach possibly adherent to liver. X ray diagnosis, made after the clinical diagnosis: "carcinoma of stomach, hardly operable."

My colleague Dr. Graham agreed with my advice as to operation, as did the patient, and the operation was done a week after admission. A large tumor was found in the pyloric region and involving the anterior and posterior walls of two thirds of the stomach. No metastases were felt. Gastrectomy was done with removal of about three fourths of the stomach. The operation was finished without difficulty and the patient recovered from it, but on the fourth day after developed pneumonia and died two days later.

The specimen when hardened in formalin measured 12 cm. on the greater curvature, 10 on the lesser, and up to 2 cm. thick. It showed an ulcer 7 cm. in diameter, covered with sloughing and bleeding granulation tissue. One enlarged gland was found in the tissue removed with the stomach. The microscopic examination showed simple carcinoma with a little colloid. One of the adjacent lymph glands was invaded.

Complete autopsy showed no other metastasis. Evidently the patient was an usually promising case for operation, and if that had been done when the X rays were first used might easily have made a complete recovery.

Many good results have been reported after resections for carcinoma of the stomach, but I have notes on one that is especially valuable because the tumor was large; the general condition bad, and some malignant tissue was unavoidably left in the abdomen. I have reported this in an address on "Medical Considerations of Gastric Surgery," Yale Medical Journal, April, 1905.

The patient was a butcher of 45 years, with symptoms for one year. Among other symptoms he had the sensation of a large snake going round and turning over in the stomach, always suggestive of mass in the stomach and never to be met with ridicule or anything but the most exact diagnostic procedures. There was a large tumor in the pyloric region, with pyloric obstruction and the usual findings of malignant obstruction. The mass was removed by my friend and former colleague, Dr. C. G. Darling of Ann Arbor, June 29, 1903. On examination of the specimen after the operation, when the mucosa had retracted from the denser tissue, we found that a rather thick strand of cancerous tissue was cut off at the duodenal end. As the patient made a good recovery and was alive at the end of 1918, it seems certain that degenerative processes may destroy such dangerous foci. This is of course exactly what radium and X rays do, and by the application of one of those agencies we can go far to imitate what is probably not an uncommon process, but one that is rarely extensive enough to bring about recovery.

As an additional argument for the radical treatment of apparently inoperable cases, I would like to give the final report on a case of sarcoma of the stomach I reported in 1900.

The patient was 55 years old when first seen. He had had stomach symptoms for three years, a tumor was discovered in July 1898. In June 1900 there was a tumor the size of a hen's egg, with complete obstruction of the pylorus, with free HCl of 28, with sarcines and yeasts and no lactic acid bacilli. The tumor was resected by the late Dr. de Nancrede of Ann Arbor with about one third of the stomach and 2 cm. of the duodenum. It was a lymphosarcoma, and for the benefit of those who would raise the question of syphilitic tumor, I might say the diagnosis was confirmed by my friend, Dr. A. S. Warthin of Ann Arbor, who recently reviewed the specimens and had no reason to change his opinion. In this case too, a small extension in the duodenal end was left behind. Nevertheless the patient made a good recovery and lived to late in 1918, dying with angina pectoris with no stomach or intestinal symptoms.

It is of course probable that in the last case we had to do with a sarcoma of low malignancy. Some such tumors are practically benign. But one cannot tell which ones will be benign and which malignant, so that even if the operation is demanded for mechanical reasons—starvation threatening my patient from pyloric obstruction—treatment should be based on the danger of metastases or invasion by continuity. The latter in fact was already in progress, and had it not been assisted as by operation and degeneration combined, one must admit that extensive generalization would soon have been added to danger from starvation. Here too was the lesson of early and thorough diagnosis and radical operative treatment.

REVIEW OF 23 CASES OF PYLORIC STENOSIS.*

J. A. Henske, M. D., Omaha, Neb.

In reviewing the literature and numerous text books on Diseases of Children from Eberly and Mitchell's publication in 1850 to Sheffield's publication of 1920, we find a very good description of pyloric stenosis by Dr. H. A. Hare published in Keating's Cyclopedia of Diseases of Children in 1890(1). It gives an excellent account of the history, pathology, and clinical history, but does not mention the epigastric wave, and the treatment consisted of opium, stimulants, food in small quantities, and nutritive enemas. In regard to operative procedures, Hare states that the question of operation is hardly to be thought of. "Aside from shock of so radical a measure, the possibility of any gain by interference is exceedingly slight. Operative procedures are to be attempted with the distinct understanding that the procedure is but a chance of a forlorn hope."

The first case was reported by Dr. Hezekiah Beardsley of New Haven, Conn. It appears in the earliest volume of Medical Transactions issued in this country, entitled, "Cases and Observations by the Medical Society of New Haven County, in the State of Conn., New Haven 1788," and republished in the Archives of Pediatrics, Page 355, 1903.

Dr. Beardsley gave a description of a typical case of pyloric stenosis in a child who developed the vomiting in the first week of infancy and lived to be five years of age. In the description of the post mortem he stated that the pylorus was invested with a hard compact substance, or scirrhosity, which so completely obstructed the passage into the duodenum, as to admit with the greatest difficulty the finest fluid. He stated that he had pronounced a scirrhosity in that part for months before the child's death. The description is that of a typical case of pyloric stenosis.

Williamson, 1841, London and Edinburgh, Journal of Medical Science was given credit by the English for describing the first case. Dovorski described a case in 1842, Lauderer in 1879, and Maier in 1885.

In 1887, a Danish pediatrist Hirshsprung read a scientific clinical recognition of pyloric stenosis before the German Pediatric Society of Wiesbaden reporting two cases. The publication of Hirshsprung stimulated others. Finkelstien in Heubner's Clinic did valuable work. The interest in the question of pyloric stenosis in infants was aroused to its greatest extent about ten years after Hirshsprung's lecture, when the therapeutic indications became a subject of lively controversy. About this time surgeons began to treat the disease. Stern was the first to operate on such a case in 1897, a child six weeks' old which died a few hours after gastro-enterostomy. The first successful operation for this condition, also a gastro-enterostomy, was performed by Lobker, July 25, 1898. Besides gastro-enterostomy Loretta's divulsion (pyloric stretching Mioll 1899), pyloroplasty (Braum 1900) and pylorectomy (Stiles 1900) were used. These various methods proved unsatisfactory on account of the high mortality.

Fredet—a French surgeon—is given credit for a longitudinal incision of the pylorus closed by a transverse line of sutures, but it remained to be popularized by Dr. Rammstedt of Munster, who modified the operation in such a way that today we do not think of using any other operative procedure in these cases. Dr. Downs of New York should be given credit for introducing it into the United States. The Straus operation is a more complicated one, and while it is successful in the hands of the originator, we would not advise it in our cases.

Since this time a great deal has been written on the subject of pyloric stenosis as to the diagnostic methods and treatment.

In the past three years we have seen and treated 23 cases, and in all of these the diagnosis was positive. During this period we have observed many infants with vomiting in the first weeks of life, due either to spasm or bad feeding. These cases, however, did not give the classical symptoms. Indeed, the diagnosis of stenosis should not be made in the absence of continued loss of weight and constipation.

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*Read before the Nebraska State Medical Assn., Omaha, April 25, 1922.

ETIOLOGY.

As to etiology, many theories have been advanced.

Thomson(2) agrees with those who hold that the muscular hypertrophy is secondary to some form of antecedent overaction which controls the emptying of the stomach. Such incoordination would probably have begun before birth, but would be most active and effective during the first weeks of life. As the case progresses other very important mechanical causes of obstruction which greatly aggravate the symptoms arise. These secondary causes of blocking consist in the increasing thickening of the muscular coat of the pylorus and in longitudinal folding of its mucous membrane. If the child survives the earlier stages there is a period of recovery. During this stage the muscular incoordination of the organ becomes normal, the peritoneal coat gradually widens, the muscular hypertrophy probably subsides, though certainly very slowly, and the lumen enlarges. The disease is, therefore, in an important sense, self-limiting; for, if the child does not die of inanition from too little food reaching the bowel, or some other complication, the natural processes of growth and development will always in time remove the obstruction.

Gray and Reynolds(3) are of the opinion that hyperadrenalism causes pyloric hypertrophy, which is regarded as one of its manifestations. Pancreatic and biliary insufficiency also resulting from hyperadrenalism accentuate the pyloric closure and influence the mortality. The sex preponderance is of similar importance. Gas and oxygen anesthesia will nearly eliminate operative fatalities, both immediate and delayed.

PATHOLOGY.

The hypertrophy is chiefly in the circular layer of muscle fibers at the pylorus. This is usually two or three times its normal thickness. The lesion appears as a hard whitish tumor at the pylorus resembling an olive in size and shape.

We consider the following clinical signs diagnostic of classical cases.

1. Vomiting, projectile in character without fever, often large quantities, showing a retention.
2. Peristaltic wave.
3. Palpable tumor not always demonstrated.
4. Decreased amount of urine.
5. Absence of milk in the stools; stools chiefly composed of mucus and bile.
6. Pseudo constipation due to lack of faecal material.

We did not find it necessary to make use of the X ray or of Hess's method of differential diagnosis by passing a very long and flexible catheter into the duodenum, or a soft catheter of graduated sizes used at the Infants Hospital in Boston. These methods are a help in diagnosis. We have tried them in cases in which we have made the diagnosis by relying upon the clinical signs which we have described above, in two cases merely to prove our diagnosis. In all of the cases that were operated on no roentgenogram or other laboratory method was used to confirm the diagnosis except the operation. In every case operation confirmed the diagnosis. In cases in which we used the heavy gruel we made use of the various methods to confirm the diagnosis.

Many parents whose child developed this condition have had other children, but in only one family did we observe a second case. I was unable to find in the literature any cases in which twins were both affected with this condition, but I am familiar with the histories which were kindly given me by Dr. Clyde Moore who made a diagnosis in a pair of twins in Nov., 1919, in which both were operated upon by the Rammstedt method, confirming the diagnosis.

Ivraham found the proportion was 4 males to 1 female. In our cases you will note charts show 18 males and 5 females.

TREATMENT.

We believe that the gruel feeding should be used in all cases of pyloric stenosis unless the condition is desperate. What we mean by gruel feeding is a preparation described by Drs. Langley Porter of San Francisco and Sauer of Evanston. This gruel is low in fats, low in sugars, and from 10% to 20% of starch. We found the rice flour made a smoother and better paste than the farina or cream of wheat. This mixture is sterilized or boiled for one hour and is of such consistency that the mixture on the inverted spoon will not run. This method is given in detail in an article by Dr. Langley Porter(4).

We place the child on this mixture the first 24 hours. If the child does not retain it from the very beginning we advise operation, unless we find some fault in the technique of administration or in making the mixture. We have not been successful in our hospital cases or in cases other than those in which the mother followed our instructions — which were written — to the minutest detail.

It is surprising to note that with the first feeding of this mixture the vomiting ceases, and several of our cases did not recur unless some error was made in the mixture. That is, the mixture was not as thick as it should be.

In the cases in which we were successful, the babies did not gain very rapidly but the turgor of the skin and the general condition improved markedly and after two or three weeks it rapidly gains in weight as the fats and sugars are increased in the mixture.

OBSERVATIONS
SEX
BOYS-18 GIRLS-5

FREDET-RAMSTEDT OPERATION
CASES 15 RECOVERED 13 DIED 2

	CASE NAME	AGE FIRST SEEN DAYS	VOMITING DAYS	ON BREAST DAYS	WEIGHT AT BIRTH LBS OZ	WEIGHT ON ADMISSION LBS OZ	WEIGHT AT OPERATION LBS OZ	% UNDER WEIGHT	WEIGHT ON DISMISSAL LBS OZ
1	B P	14	2	14	7-	6-15	6-7	12	7-1
2	D M	35	11	35	9-	10-0¾	9-2	14	9-6
3	K K	16	6	3	7-	6-6	6-6	14	7-8¾
4	T H	35	14	21	7-	6-13½	7-	20	7-4¾
5	E B^2	32	21	32	8-11	8-8	8-	20	9-9
6	B C	61	24	61	9-12	10-	10-	22	11-
7	E N	49	18	35	8-	8-	8-	24	9-8
8	D B	34	15	34	7-4	6-4	6-4	24	6-12
9	L L	49	14	49	10-	8-1	8-1	26	9-
10	E D	35	13	2	8-	7-14	7-14	27	9-1
11	E S	35	21	30	9-8	6-8	6-8	40	7-7
12	H H	32	15	26	10-4	6-12	6-7	42	7-10
13	M S	45	10	45	8-8	6-2¼	6-2	44	6-13
14	M H	21	7	5	10-	6-4¼	5-12	47	DIED
15	H B	61	22	3	5-	5-5½	4-13	48	DIED

STRAUS OPERATION
CASES 2 RECOVERED 1 DIED 1

	CASE NAME	AGE FIRST SEEN DAYS	VOMITING DAYS	ON BREAST DAYS	WEIGHT AT BIRTH LBS OZ	WEIGHT ON ADMISSION LBS OZ	WEIGHT AT OPERATION LBS OZ	% UNDER WEIGHT	WEIGHT ON DISMISSAL LBS OZ
1	EB^1	61	24	45	9-0¼	7-13	7-13	34	7-15
2	MS	60	21	21	8-	5-2	5-	55	DIED

GRUEL FEEDING
CASES 6 NO DEATHS

I will cite the history of one of the six cases in which gruel feeding was successful.

V. G. At the age of 12 weeks, gave a history of vomiting for 5 weeks, a loss of weight, and pseudo constipation. Examination showed the peristaltic wave, and on palpation pyloric tumor which was best palpated while the child was given a bottle of water to suck upon and the abdominal muscles relaxed. The birth weight was 10 lbs. At the time of examination weight was 6 lbs. The first week the gruel feeding was administered the child immediately stopped vomiting, and the mother stated that vomiting occurred only twice during the four months that she was feeding the heavy gruel. In each instance this occurred when the gruel was too thin. The child gained ½ lb. the second week. At the end of the third week the child weighed 7½ lbs., and twelve days later developed whooping cough. The ninth week the child weighed 10½ lbs. It had made a gain of 3 lbs. in spite of the whooping cough. Following this, the child made a normal gain. This was one of the first cases in which we used the gruel feeding. At the age of 2½ years, the child weighed 34½ lbs., and showed no evidence of any gastro-intestinal disturbance. Our examination disclosed no physical or mental defects.

The majority of our cases in which gruel feeding was successful showed symptoms at an earlier age than 12 weeks but the results were along the same line.

We have given the atropine treatment a thorough trial and increased the dosage to the physiological limit. Some cases developed dilatation of the pupils and lobster red color of the skin, but we did not succeed with this method of treatment.

The thick gruel feeding may be tried except in cases of marked emaciation. If it fails to maintain body weight after a few days and vomiting persists, or starch indigestion results, surgical intervention should be resorted to.

In our series of cases the Rammstedt operation was performed 15 times, Straus operation twice, and gruel feeding was successful in six cases.

Practically all cases are more or less dehydrated, and it is necessary to introduce fluids one way or another. We recommend the introduction of normal saline into the abdominal cavity at the close of the operation prior to tying the sutures. We are usually able to give ½ to 1 oz. of glucose by mouth each hour after operation and continue to give it the first three hours. Then alternate either with half breast milk and half water, or a very low dilution of cow's milk and sugar. These amounts are gradually increased as the child progresses. Usually, at the end of the first week, the child is taking whole breast milk or a normal formula for its age. The average case is dismissed from the hospital at the end of the tenth day, and most cases are kept under observation for six months or longer. This usually consists of a letter reporting the condition of the child and instructions sent to the mother through the mail.

All the cases we reported, with the exception of four, live out of town.

On the chart you will observe the ages, weights, and results, and you will note that we did not see these cases early. In many of the cases the diagnosis was not made prior to referring the case to us. You will note that the percentage of under-weights varies from 12% to 55%, and that the mortality is the result of the severe emaciation and dehydration. In the three cases in which the child did not survive the operation, the percentage of underweight was 47% to 55%. You will also note that the majority of the babies had been removed from the breast, thinking this was the cause of the vomiting.

CONCLUSIONS.

1. In this condition symptoms are so characteristic a diagnosis can be made before the infant develops extreme emaciation.
2. Thick gruel feeding may be tried except in cases of marked emaciation. The reports of Porter of San Francisco and Sauer of Evanston together with our own observations warrant the conclusion that some cases recover under dietetic treatment.
3. If the gruel feeding fails to maintain the body weight after a few days and vomiting persists, or starch indigestion results, surgical intervention should be resorted to.
4. Cases seen late with a loss of 40 per cent or more of body weight, should be at once submitted to surgical intervention.
5. It is unfair to the infant and unjust to the surgeon to delay operation until the infant is practically moribund.
6. In our series of cases the majority came under our observation after a great loss of weight and prompt operation was advised.
7. The Fredet-Rammstedt operation is the operation of choice.

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DISCUSSION.

B. W. Christie, M. D., Omaha: This is a very excellent paper and should not go by without some discussion. The main thing in these cases is to distinguish between pyloric stenosis and pyloric spasm. To do that, aside from the symptoms as described by Dr. Henske, there are three methods which have been followed in different parts of the United States with greater or less success.

First is the X ray means of making the differentiation; second is the method followed almost entirely at Harvard—the passing of the duodenal catheter—and the third is the feeding of thick gruels and determining whether it will pass into the duodenum.

I want to speak of these three methods followed in different medical centers as means of differentiation. The method of using the duodenal catheter, which is done by introducing the catheter during the feeding, can be done with the assistance of the fluoroscope or without. In the hands of the man who has developed the technique to a high degree and has a number of babies he can practice upon, it is practical. In the hands of most men it is not followed with great success.

The use of the X ray, giving the bismuth paste and taking plates for the differentiation of the two, I wish to criticize, although in the hands of a great many men they contend it is the best method. One surgeon in Chicago has reported over one hundred cases in which he declares it is the only proper method to distinguish between the two conditions.

If there is any laboratory method that has been overdone, it is the X ray. I use the X ray all the time. But it is getting so the medical profession is using it to make their diagnoses entirely. In differentiating between pyloric stenosis and pyloric spasm, this is a condition in which the X ray can be criticized for increasing the mortality. If you delay with some of these dehydrated babies and feed bismuth paste, you will find their temperature will shoot up to 104, and the baby will become more dehydrated, and it may increase your mortality quite markedly. As far as I am concerned with the X ray, I do not think it is logical to use it in these cases especially if they are badly dehydrated—far gone. If you wait for the X ray before making your diagnosis, the child will die while waiting. I will be criticized in this matter, but I am a believer in differences of opinion. Difference of opinion makes horse races.

The other method—the feeding of thick gruels—does not harm the child; and in some of the cases of actual pyloric stenosis you will get by by feeding heavy gruel. It has been a hard thing to understand why heavy gruel will go through, rather than the diluted way; but I think the mass comes down and the hard mass produces contraction when the fluid would not pass. I never read any logical explanation of the reason why it is true. You will get by in a certain percentage of cases, and these cases prove you can get by even with pyloric stenosis with thick gruel.

As a means of differentiation, it is the best method of the three, because you are not hurting the child while you are doing it.

Wm. H. Pruner, M. D., Omaha: As to the surgical aspect of pyloric stenosis we have two operations, ie: the Rammstedt and the Strauss. The Rammstedt is a very simple operation which consists of a longitudinal incision being made over the tumor mass down to the mucosa and the pylorus dropped back.

In connection with the Strauss operation you do a little more work, you shell out the mucosa, make a muscular flap and suture the omentum over the raw surface. In 1920 Strauss reported in the Chicago clinics a series of 103 cases operated upon for pyloric stenosis with three fatalities. His report is rather unique. He reports that in his series of cases he found the tumor mass bears a definite relation to the child's age and thinks that his operation is preferable to the Rammstedt method in so far as it is more complete.

As a rule I think the Rammstedt operation is preferable because it is more simple than the Strauss and causes less shock.

Earl V. Wiedman, M. D., Lincoln: I want to thank the doctor for the excellent review of this paper. We have seen a number of these cases. We have been running along for three or four years and have not seen any. Recently we have come upon two cases. We have been using a combination of the gruel and atropin treatment. I think it is preferable to either the atropin or gruel feeding alone. Dr. Clifford Grulee of Chicago has suggested the use of atropin before each feeding, or hypodermic injections preceding each feeding. You may run along and not see a case, and then you will see several.

Another point he touched upon is very important—the keeping up of the body fluids. He mentioned the intraperitoneal salts. I think it is important to keep up the body fluids and prevent dehydration by injection of normal salt solution or glucose and keep the baby in better shape and thereby give the surgeon a fair shot at the case.

C. R. Kennedy, M. D., Omaha: I have been greatly interested in Dr. Henske's paper as I have had the pleasure of operating on some of these cases he reports and I know his judgment in such cases to be of the greatest value.

In all cases operated upon, we found a pyloric tumor and there was no doubt as to the correctness of the diagnosis. As regards the X ray, it is not necessary for the diagnosis and I think it is a mistake to load these babies up on barium and to delay the operation for an X ray examination.

The secret of success consists in a rapid, efficient, shockless operation and this is best assured by the Rammstedt technique. It is important to keep the baby warm, operate rapidly without trauma, release all constriction fibres and not puncture the mucosa. If four to eight ounces of normal saline is passed into the peritoneal cavity just before suture (a method suggested to me by Dr. McClannahan) it does a great deal to combat the dehydration present.

To my mind this is the method of choice and the mortality is much less than with the more extensive operation.

Dr. Henske: I wish to thank the gentlemen for the discussion.

The Strauss operation in the hands of the originator gives very good results. In the two cases in which this operation was performed there was far more trauma, more handling of viscera and the length of time to complete the operation was at least twice as long as that in the Rammstedt procedure. Both cases suffered severe shock. The case in which death insued, died within a few hours. The other necessitated vigorous stimulation and constant observation during the first 48 hours. The Rammstedt operation is a simpler, quicker procedure, with the least amount of shock and in our experience the operation has removed the obstruction. The two deaths in our series were directly the result of the severe emaciation and low resistance and not due to failure to remove the obstruction.

We have tried the combination gruel and atropin treatment and find it is not necessary to add atropin to the gruel feeding. Dr Grulee recommends hypodermics of atropin and washing out the stomach before each feeding and reports good results in pyloric spasm. We have not tried this method in cases of pyloric stenosis.

Our results with the Rammstedt method have been very satisfactory. This operation removed the obstruction, and reports from these cases from six months to three years following operation show a complete recovery.

BASAL METABOLISM AND ITS CLINICAL VALUE.*

George W. Covey, M. D., Lincoln, Neb.

INTRODUCTION.

Within a short period dating back not further than the year 1900, the term "basal metabolism" has forced itself rapidly into the vocabulary of the medical world. It seems that no term has taken root more quickly and spread more rapidly in the profession than this, and in the space of a few years the determination of the basal metabolism rate has become a permanent fixture in the clinical study of certain types of cases. On the other hand, the conception of just what we mean by this term and just what information and benefit may be derived from this determination remains to a certain extent hazy in the minds of many who have not had time or opportunity to make a careful study of this field. Therefore, in face of the fact that the literature is flooded with articles on this subject at the present time, I am going to attempt to present it to you briefly in the hope that I may help to clarify this conception.

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HISTORY.

The history of the development of our knowledge of heat production is exceedingly interesting but of so little importance to us that I will call to your attention only two or three outstanding facts concerning it. First, that Lavoisier, the discoverer of oxygen, as long ago as 1789 had a clear conception of the use of this gas in the process of combustion in the animal body, and actually determined the oxygen consumption in the human subject, fasting, both at rest and at work. Secondly, that it was over a hundred years before much more was accomplished in the study of this great biological discovery, and that most of our present knowledge has been acquired since about 1890 and much of it through a few men, prominent among whom are Rubner, Atwater, Lusk, Benedict, and Eugene and Delafield Du Bois.

DEFINITION.

Metabolism in general may be considered to include the changes that take place in our foods from the time they are absorbed until the time their end products are excreted from the body. Digestion as it occurs in the gastrointestinal tract is not properly a part of metabolism, but a preparation of the various foods for combustion after absorption. It is largely a process of hydrolysis, by means of which the chemical composition of our foodstuffs is changed from the more to the less complex. This process, while not a direct part of metabolism, affects the latter because it requires energy to digest foods. The amount of energy required varies for the different foods. The body expends 30 calories (1) to derive 100 calories from protein, 12 calories to derive 100 calories from fat, and 5 calories to derive 100 calories from carbohydrates. Of course, therefore, the taking in of food stimulates metabolism, and protein stimulates it the most of the three foodstuffs. This is termed the "specific dynamic action of foods," and should be taken into account in the treatment of thyreotoxic patients, remembering that fats and carbohydrates require the least expenditure of energy for their digestion, hence stimulate the metabolic rate the least, while proteins require the greatest amount of energy, stimulate metabolism the most, and therefore should be given in minimal amounts.

As opposed to digestion, the metabolic process after absorption is largely one of oxidation, or the burning of the foods. This burning requires oxygen, produces heat and energy, and results in certain end products, the simplest of which are carbon dioxide and water.

Since the rate of heat production (which is practically synonymous with metabolism) is influenced as we have seen by food intake and the process of digestion and by any other thing requiring energy, such as exercise or mental exertion, in order to obtain results which are comparable we must eliminate these variables. Consequently we define the basal metabolic rate as that rate of heat production obtaining when the subject is at complete rest and in the postabsorptive state, namely, fourteen or more hours after the ingestion of food.

METHODS OF DETERMINATION OF BASAL METABOLIC RATE.

The methods of determining the rate of heat production may be classed as direct and indirect. The first, the direct, is of course the classical method. It is at once the more accurate and the more expensive, time consuming and exacting. Roughly, it consists in placing the patient in a closed chamber, so insulated as to be almost perfectly heat tight. He reclines on a bed in as nearly absolute quiet as possible. The temperature of this chamber is maintained at a level below that of the body by constantly passing through it a stream of cold water. The difference in temperature of the ingoing and outcoming water is measured by electric resistance thermometers to an accuracy of 0.01° C. and its volume is metered. Thereby the amount of heat absorbed by the water (or produced by the subject) can be accurately computed. The moisture given off by way of the lungs and skin, of course, is vaporized. Each gramme of this moisture requires 0.586 calories to vaporize it. This lost heat is computed by passing the air of the chamber through weighed sulphuric acid. The number of grammes of water absorbed in the sulphuric acid, multiplied by 0.586, gives the calories of heat used in vaporizing this moisture. This apparatus constitutes a simple calorimeter. When to this is added a provision for analyzing the air of the chamber and thus estimating the amount of oxygen absorbed and carbon dioxide exhaled, we have a so-called respiration calorimeter by which both direct and indirect calorimetry can be done.

The indirect methods of calorimetry are two. The first of these is the chemical analysis of the ingested food over a given period of time, with the measurement of nitrogen and carbon in the excreta for that period. From this the grammes of protein, fat and carbohydrate burned in the body can be determined; and, knowing the heat value of these per gramme, the heat production can be estimated. The second was that first used, namely, the computation of heat production by accurate measurement of oxygen consumption and carbon dioxide production.

This latter type of indirect calorimetry is the one in common use clinically at the present time, and there are several types of machines for making these determinations. The best method is the use of gasometer type of apparatus. (2) In this method, air from the outside is inhaled by way of a tube. The exhaled air is directed from the mask by flutter valves into a spirometer tank. At the end of a certain length of time, measured by a stop-watch, the tank circuit is closed, the volume exhaled is read from a scale on the spirometer, and the contained gas is analyzed by the Haldane method. Knowing the composition of the outdoor air in the given locality, it is then a simple matter to compute the respiratory quotient and the theoretical heat production.

A simpler method is made use of in the Benedict closed circuit type of apparatus, which is the one we are using. Here a small spirometer tank filled with oxygen is connected to a face mask by two tubes, one of which passes through three jars, the first and third of which contain calcium chloride and the second soda lime. Flutter valves direct the air current from the tank through the jars of calcium chloride and soda lime, where moisture and carbon dioxide are deposited, then to the mask and again from the mask back to the spirometer tank. An electric blower in the system keeps the air moving and the spirometer tank is accurately counterbalanced, so that no added difficulty is experienced in breathing through the system. After a given accurately measured period of about ten minutes the amount of oxygen consumed is read from a scale on the spirometer, and the weight of the carbon dioxid exhaled is obtained by reweighing the second and third jars in the circuit. From this data the theoretical heat production is estimated.

METHOD OF COMPUTATION.

Having determined the volume of oxygen consumed per minute by a subject under basal conditions, this volume is reduced to zero degrees centigrade and 760 millimeters of mercury barometric pressure. The heat value of this quantity of oxygen varies directly with the respiratory quotient of the subject at the time of making the determination.

If the body burned only one substance of given chemical composition, it would be necessary only to measure the amount of oxygen used; but the amount of oxygen in the molecule of the substance burned makes a marked difference in the quantity of oxygen required to reduce that molecule to carbon dioxide and water. For example, sugars contain relatively more of oxygen than either fats or protein, hence required less for complete combustion and produce relatively more carbon dioxide than the others. For this reason the heat value of a given amount of oxygen consumed varies with the type of foodstuff burned—that is, it varies directly with the respiratory quotient. The respiratory quotient is the ratio of carbon dioxide produced to the oxygen consumed in the burning of a food substance. For sugars this ratio is 1.0, for fats 0.71, and for proteins 0.8. On an ordinary mixed diet it will average about 0.82. A liter of oxygen with a respiratory quotient of 1 has a heat value of 5.047 calories, and with a respiratory quotient of 0.707 it has a value of 4.686 calories. The difference in heat value for a liter of oxygen at the extremes here is so small that for clinical purposes the measurement of the oxygen alone and the use of a constant average respiratory quotient of 0.82 would give a fair degree of accuracy. The percentage of error would increase, however, with the increased quantity of oxygen used, as in a case with a markedly increased basal rate, therefore it is far better to measure both oxygen and carbon dioxide.

Having obtained the value of the oxygen

at the given respiratory quotient for the subject being studied, it is a matter of simple multiplication to determine the rate of heat production over any period of time. It is customary to express this in terms of calories per hour. By dividing this figure by that expressing the body surface in square meters, we obtain the heat production per square meter per hour. Comparison of this with the normal figure for the given sex and age gives us the percentage above or below normal.

Let us suppose, for example, that we have a female aged 35, with a body surface of 1.92 square meters; that she uses 250 cc. of oxygen per minute at 0° C. and 760 mm. of mercury, or 15 liters per hour; and that she produces during the same time 175.0 cc. of carbon dioxide per minute. Her respiratory quotient would be 175 divided by 250, or 0.7. The heat value of oxygen with a respiratory quotient of 0.7 is 4.686 calories per liter, therefore 15 times 4.686, or 70.3, is the caloric value of her total oxygen per hour. And 70.3 divided by 1.92 (her body surface) gives 36.5 calories per square meter per hour.

NORMAL HEAT PRODUCTION.

From either of the methods described above the total heat production for a given individual under given conditions can be computed for a given period of time, say twenty-four hours. However, it was found that normal individuals differ under like physiological conditions according to age, size and sex (3-4-5-6-7-8-9-10); consequently the findings for a certain individual were not comparable with those of another until some basis of comparison could be worked out. Benedict (11) and his co-workers in 1914 used the body weight as a basis for comparison and stated that the normal production of heat was approximately one calorie per kilogramme per hour.

It was afterward found that this rule was subject to great variations, hence error, that heat production varied according to surface area rather than body weight, and several methods were worked out for measuring the surface of the body (5-7-8-9). These earlier methods were laborious and subject to inaccuracies. Eventually Du Bois and Du Bois with their co-workers (5-7-8) by a long series of careful measurements found that a formula based on the height and weight of the individual gave the surface area with an average accuracy of plus or minus 1.5 per cent and a maximum error of 5 per cent. This was much more accurate than the formula given by Professor Mech (Ztach. f. Biol. 1879, XV:425), which had an average error of 15 per cent and a maximum of 30 per cent.

The Du Bois (5) "linear" or "height-weight" formula is as follows: Area equals weight raised to the 0.425 power, times height raised to the 0.725 power, multiplied by a constant $(A\text{-}W^{0.425}xH^{0.725}xC)$. The weight is in kilogrammes, the height in centimeters, and the constant is 71.84. From the formula they have platted a chart (2-5-12) whereby, knowing the height and weight, one can obtain the surface area in a moment.

From the standpoint of age (3) and sex it was found that the rate of metabolism in normal is low at birth, increases rapidly the first year, then more slowly reaches a maximum at about six years. It then decreases rapidly to about twenty years of age, and more slowly to old age. After six years of age girls and women have a rate definitely lower than that of boys and men.

Aub and Du Bois (4) give the following table of normals for various ages and the two sexes:

	Calories per square meter per hour	
Age	Male	Female
14-16	46.0	43.0
16-18	43.0	40.0
18-20	41.0	38.0
20-30	39.5	37.0
30-40	39.5	36.5
40-50	38.5	36.0
50-60	37.5	35.0
60-70	36.5	34.0
70-80	35.5	33.0

This table is now in use as the standard normal. It has been found that the obese, legless or mutilated individuals, the very thin, and all normals, agree closely with the rates given here in their heat production, when the surface area is measured by the "linear" or "height-weight" formula.

The question now arises as to how much variation above and below these normal standards shall be considered within the range of "normal" from the clinical standpoint. It has been shown repeatedly, by running long series of supposed normals, that they vary between a minus ten per cent and a plus ten per cent, or a total variation of twenty per cent. At first this seems like a large variation, but Boothy (13) has pointed out a significant comparison with the normal and pathological temperature. This seems like a happy comparison, because both the temperature and the basal metabolism rate are measurements or indicators of "certain heat phenomena inherent in the living organism." He points out that we pay no attention to temperatures lying between 97.5° and 99°, a normal variation of 1.5 degrees, but that those from 99° to 105° or more are of great significance, a pathological variation of six or more degrees. The normal, therefore, is to the pathological as 1 to 4.7. The normal basal metabolism rates range from minus ten to plus ten, or twenty points, while pathological rates range from minus 45 to plus 125 or more, or a ratio of 1 to 7.5. We see, therefore, that in spite of the apparently wide range of normal metabolism rates, they are essentially more accurate than the measurement of temperature when the normal range of each is compared to its pathologic range.

BASAL METABOLISM RATE IN DISEASE.

The basal metabolic rate has been studied repeatedly in a large number of diseased conditions, among which may be enumerated the following: Typhoid fever (14), tuberculosis (15–16), malaria and other febrile conditions (17), diabetes mellitus (18), pellagra (19), obesity (6), inanition and other metabolic disturbances, leukemia (20) and pernicious anemia (21), the nephritides (22) and cardiac diseases (23), and all disturbances of the endocrine glands, chief among which are those of the thyroid and pituitary (1–13–24–25–26). It is beyond the scope of this paper to take up the findings in each of these conditions. As a rule, in all conditions except the disturbances of the thyroid gland the estimation of the metabolic rate is useful chiefly as a means of studying the metabolism in general and that of the various foodstuffs in the given disease in particular, and not as a means of diagnosis or prognosis.

There are relatively few conditions in which the basal metabolic rate is consistently increased. Exophthalmic goitre, hyperthyroidism or adenoma (Boothby), the active stage of acromegaly and all febrile conditions constantly show increased rates. Diseases in which there is occasionally but inconstantly a slightly increased rate are essential hypertension, pernicious anemia, leukemia and diabetes. Boothby (13) states that at the Mayo Clinic, in at least ninety-five per cent of all cases showing an increased rate, the increase is due to hyperthyroidism.

For all practical purposes, therefore, an increased basal metabolism rate means hyperthyroidism. In a case of early or mild tuberculosis, or in early endocarditis with clinical symptoms simulating hyperthyroidism, there may be a slightly increased rate due to the fact that the patient is slightly febrile, even though the temperature be normal at the time the test is made. Therefore in such conditions as these, where the rate of metabolism is measured as a diagnostic means, the results should be interpreted in conjunction with a temperature curve. If there is a slight temperature at any time during the day and the metabolic rate is only slightly increased, perhaps plus twenty per cent or less, it is highly probable that the clinical symptoms are not due to hyperthyroidism, but to the condition causing the slight fever and increased heat production.

Neuroses associated with goitre of the nontoxic variety are difficult at times to differentiate from hyperthyroidism. In these cases the metabolic rate should be normal. It is somewhat difficult, however, as pointed out by Boothby, to keep these patients under standard basal conditions because of their nervousness. The test should always be repeated at least once, the first being a preliminary reading to accustom the patient to the regime, and probably any case having a rate between plus ten and plus twenty should have the test repeated (Boothby) in order to eliminate technical errors as far as possible and to have the patient as nearly as possible under standard basal conditions.

Aside from the diagnostic aid of this laboratory estimation, it has a certain value in selecting the proper therapeutic procedure, especially the type of operation, and in forecasting the results of this treatment. Just as in febrile conditions we may see a patient die with a temperature never reaching the stage of hyperpyrexia, while another carries a very high temperature and recovers without apparently suffering great damage, so certain patients with hyperthyroidism but a relatively low metabolic rate may bear the disease badly, and vice versa. This is particularly true in the second or third wave or cycle of the disease when the exacerbation strikes a patient whose heart and other parenchymatous organs have already stood the brunt of one or more attacks and are thereby more keenly affected by an intoxication which would give rise to a relatively low or moderate increase in heat production. We must take every piece of evidence into consideration, therefore, in forming our opinion of a given case. On the whole, however, those patients with a high metabolism have an increased mortality rate and are more severely damaged if they recover than those with a low rate. Boothby and Sistrunk (27) point out the fact that preliminary ligations are not frequently indicated in patients whose rates are below plus fifty per cent, and almost never in those with a rate below plus forty per cent.

Finally, the estimation of the metabolic rate is of value in following up treated cases of hyperthyroidism, no matter what the method employed. Because of the damage resulting from a continued overactivity of the thyroid gland, clinical symptoms are likely to be deceiving even after the patient has begun to recover. In this connection attention is called particularly to the following two cases in which the disease was treated by the Roentgen ray.

Case A-6978: Female, aged 31, single. Came in in July, 1920, complaining of loss of weight, easy fatigue, slight cough and pain in the back when tired. These symptoms had been present about three months. Physically there was an occasional elevation of temperature to 99° or very slightly above, with a rapid pulse (100 to 110), a slight enlargement of the thyroid gland, no tremor, and a very slight prominence of the eyes, which was really most noticeable in comparison after it had disappeared. Pulmonary tuberculosis and hyperthyroidism were considered, and in spite of the absence of definite chest findings tuberculosis was considered most likely and she was taken from her work for four months. During this time she improved greatly in that she gained weight and lost her feeling of being fatigued. She returned to work and at once relapsed. In December, 1920, a basal metabolic determination showed her rate to be plus 24 per cent. She was permitted to continue work, but her thyroid was given Roentgen treatment. She gradually improved clinically, though five months later her rate was still high—plus 57. It then suddenly dropped to plus 10.8 per cent. She was then feeling well, but continued a rapid pulse. She returned in September, 1921, feeling well, but on account of her rapid pulse the roentgenologist was of the opinion that she needed more irradiation. A metabolic test at this time showed her rate to be minus 10.1 per cent. Therefore there was no indication for further irradiation.

Case A-6648 was found to be suffering from hyperthyroidism with a rate of plus 70.5 per cent at the initial examination in October, 1920. She was treated by the Roentgen ray. She was given three series during December, 1920, and January, February and March, 1921. On the first of February her rate had fallen to plus 17 per cent, and there was marked improvement in every way except that her pulse remained at 100 to 108. In July she returned and her rate was found to be plus 6 per cent, or normal; but the roentgenologist, on the basis of her persistently rapid pulse, gave her a fourth series. Now she says that she feels dull and lacks energy. Her mentality is not acute and she has some appearances of hypothyroidism. Her rate will be determined again this month, and I predict it will be found below normal.

In another case (A-7988) a lobectomy had been done eight months prior to the time I saw the patient. Her basal metabolic rate had not been determined at the time of operation, but presumably it was increased, for her gland was not excessively large. She gave a history which would lead one to think she had suffered from some grade of hyperthyroidism, and she was observed and operated upon by a competent clinician. When seen by me she thought she was still suffering from symptoms of toxic goitre because of excessive nervousness. Physically she presented a few signs of hypothyroidism, such as dry skin, coarse, dry, greying hair, and slow and confused mentality, but no myxedema as such. Her rate was found to be minus 10.4 per cent—not a marked deficiency, but one which was sufficient to indicate the proper therapy. Thyroid extract in small doses caused her metabolic rate to rise to minus 0.2 per cent, where it remains as long as she continues to take the thyroid extract. Her nervousness has disappeared, her mentality has returned to normal, and her hair and skin are oily. She considers herself normally well. These three brief cases serve to illustrate my point of the value of checking both diagnosis and therapy by the metabolic rate.

A decreased metabolic rate is due usually to hypothyroidism, though to a lesser degree hypopituitarism produces a lowering of the heat production. Starvation from any cause also lessens heat production. These three conditions are usually not very difficult to differentiate, and will not be taken up more fully in this paper.

Before concluding, I want to quote from Fussell and Jonas (1) the following paragraph:

"My plea is to all of you to make use of this most valuable diagnostic method. Make use of it by urging each of your local hospitals to install an instrument to be operated by someone who has the knowledge to operate it accurately. It is neither practicable nor desirable that the practicing physician attempt to do the work. It is difficult, time-consuming work, taking a skilled operator, but it pays to have the work done by someone who is convenient to your work, because your diagnosis will be accurate and your treatment better controlled."

SUMMARY

1. The measurement of the basal metabolic rate is a determination of a heat phenomenon inherent in the animal body.
2. Its determination is fully as important and probably more accurate than the measurement of body temperature.
3. It is defined as that rate of heat production obtaining when the subject is at absolute rest in the reclining position and in the post-absorptive state.
4. It divides all individuals into three large groups, namely: Normals, ranging from minus ten per cent; those with rates below normal—that is, from minus forty or lower to minus ten; and finally, those above normal—that is, from plus ten to plus 125 or higher .
5. It is of value in the study of the processes of metabolism in many conditions, such as the febrile diseases, diabetes, anemias, leukemias, etc.
6. Its greatest value is in
    (a) The differentiation of certain conditions, such as early tuberculosis, early endocarditis, and certain neuroses from early hyperthyroidism.
    (b) Determination of the severity of hyperthyroidism.
    (c) Determination of the best therapy in these cases, including the estimation of operative risk and selection of choice of operation.
    (d) The following up of treated cases.
    (e) The diagnosis of hypothyroidism and the checking up of its treatment by the glandular extract.

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ACACIA FOR TRANSFUSION.

W. M. Bayliss (Journal A. M. A., June 17, 1922), defends the use of acacia solution for intravenous infusion, when properly used, and discusses the objections raised to it. He insists that it is a matter of the greatest importance to use good samples of the acacia.

THE SPUTUM BORNE DISEASES IN VIEW OF THE LESSONS OF THE WORLD WAR.*

By J. M. Banister, A. B., M. D., F. A. C. S., Omaha, Neb.

As a result of our experience in epidemiology during the World War, a group of old diseases under a new classification has assumed an additional importance in consequence of a common means of transmission through droplet infection from the noses, mouths, and throats of those harboring the infective organisms whether actually sick of such affections, or playing the part of "carriers" in the true acceptation of the term.

I refer to the group of affections classified as sputum borne diseases.

No one has brought the epidemiology of this class of infections into professional ken in a more able manner than has Colonel E. B. Vedder, Medical Corps, U. S. Army, in his "Wellcome Prize Essay" for 1918, published in the Military Surgeon of February, 1919.

In this class of diseases can be included tuberculosis, pneumonia, bronchitis, tonsillitis, rhinitis, influenza, diphtheria, mumps, whooping cough, measles, scarlet fever, and cerebrospinal meningitis(1). It may be considered proved that anterior poliomyelitis may likewise be placed in this class.

It has been aptly stated that, however shocking it may be to our refined sensibilities, it is, nevertheless, a fact that there is an intimate interchange of nose, mouth, and throat secretions between individuals in our daily associations in business and social life. This interchange of droplet infection is responsible for an enormous amount of disease, suffering and death.

Let us now consider certain epidemiological and pathological facts in connection with the sputum borne diseases.

TUBERCULOSIS: Our knowledge of tuberculosis has been greatly enhanced by military investigation and observation before, during, and after the World War.

It was found in the physical examinations of the millions of young men, brought under official medical observation in consequence of the draft, that a great majority had at some time been infected with tuberculosis as shown by the presence of healed lesions.

It may be affirmed that the same statement will apply to the members of all classes of society in civilian life, as indicated by Naegeli's statistics(2).

At once attention is riveted upon the importance of lymph node infection in the primary invasion of the body by tuberculosis.

In some cases the tubercle bacilli have entered the lymphatic glands, and, in consequence of individual resistance there encountered, have remained quiescent. In others the bacilli have been able to overcome the local resistance and to invade the pulmonary tissue through the circulation, but owing to the general powers of resistance of the individuals have been unable to do more than cause the beginnings of lesions, which have healed perfectly. In the smaller proportion of individuals so infected the resistance proves inadequate, and the disease progresses in active form.

In consequence of this lymph node infection, so common, the great mass of our population has been repeatedly revaccinated according to Bushnell, and has thus acquired a degree of immunity(3).

In these individuals let resistance be lowered, immunity lessened, and susceptibility increased, and active lesions result as a sequence. A large dose of virulent tubercle bacilli injected into the rabbit or guinea pig, causes general tuberculosis, and the animal, possessing no acquired immunity, invariably perishes within a few weeks or months(4). In the young child with no acquired immunity, similar treatment would be followed by the same result(5).

In the case of the human subject at a later period of life the lymph node infections mentioned, will have served to create a partial immunity, and when pulmonary tuberculosis occurs it is because the bacilli entering the blood stream from the lymphatic system find less resistance in the pulmonary tissue than elsewhere, and are thus enabled to develop there(6).

The chief avenue of infection in the case of this disease was formerly believed to be the respiratory tract. It has been held until very recently that the fine dried particles of sputum inhaled in the respiratory tract were the principal means of infection(7). This is now a discarded opinion, and it is considered virtually impossible for this tubercular dust to reach the finer bronchioles and air vesicles by inspiration.

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*Read before the Omaha-Douglas County Medical Society, March 28th, 1922.

The infected individual, himself, in the vast majority of instances, is the active infective agent, as he constantly ejects in coughing myriads of droplets of secretion loaded with virulent bacilli, which may gain immediate access to the noses, mouths, and throats of other individuals, or are swallowed by the latter through the food, or by the use of eating and drinking utensils, which the tubercular subject has directly infected.

The entering bacilli, from whatever source, reach the cervical, bronchial, or mesenteric glands, and may remain latent there, or in the presence of lowered resistance, or increased susceptibility, may become active, and entering the veins and lymphatics be carried by these blood vessels, and the thoracic duct, to the right side of the heart, and thence by the pulmonary circulation to the intricate capillary network surrounding the air vesicles(8). There, around and between the air vesicles, not in their lining membrane, the bacilli are deposited and commence their pernicious activity. (Aufrecht, Calmette.)(9).

PNEUMONIA: In this brief discussion I shall group the four strains of the pneumococcus, and shall speak of this microorganism under the common designation.

Pneumonia is a sputum-borne disease true to type. Let an individual, who may be carrying the organism in his mouth and throat habitually, or who, on the other hand, may have acquired the germ from a carrier, or from one suffering with the active disease, suddenly have his resistance lowered by exposure resulting in chilling of the body, or more gradually undergo a lessening of his powers of resistance from poor hygienic conditions, as for instance improper ventilation, or inadequate or defective food supply, or the results of dissipation of any kind, and the microorganism may be enabled to assume the required degree of virulence and infect the lungs.

The infected individual transmits the infection to others by droplets of secretion ejected in coughing or sneezing.

The massing of our new levies during the World War served to fix definitely our views upon this point.

In this connection it may be stated that the investigations of Avery and Dochez have shown that individuals exposed to cases of pneumonia may become true carriers of virulent pneumococci for a period of from twelve to ninety days. Out of 297 persons so exposed 116 were found to be such carriers(10).

BRONCHITIS AND TONSILLITIS are definitely sputum-borne, but, as is well known, are not sharply defined disease entities with reference to their germ causation, as the bacterial flora in such infections may be decidedly varied. No matter what the type or strain of the offending organisms may be, either in bronchitis or in tonsillitis, these infections are conveyed from person to person in a spray of minute particles cast out from mouths and throats in the acts of coughing or loud speaking.

In the military service it had been noted for many years that, as the cold weather would come on, and the men would be inclined to crowd together in ill ventilated barrack rooms, the incidence of bronchitis and tonsillitis would be greatly increased, and this increased incidence rate was specially noted in our crowded camps during the World War. Overcrowding and poor ventilation in such cases would cause a weakened resistance on the part of occupants of barrack buildings, and droplet infection would find a fertile soil. The same conditions conducive to infection will be found in factories, crowded stores, theatres, schools, and poorly ventilated and crowded dormitories in civilian life.

"It has been observed by all practical sanitarians that the respiratory diseases tend to disappear when an increased space has been allotted to each individual." (Vedder).

RHINITIS, the so-called common cold in the head, is, like the two affections just mentioned, a sputum-borne pathological condition characterized by a varying and mixed bacterial component. A common cold is not a simple and unimportant affection by any means. When we consider the secondary complications involving the accessory sinuses of the nose, with the dangers engendered by them; when we bear in mind the pyogenic infections of the middle ear, with their complications, namely the possibilities of deafness, the meningeal dangers, the occurrence of mastoiditis with all the perils due thereto, including septic thrombosis of the lateral sinus with its pyaemic consequences, well may we be impressed with the fact that an attack of rhinitis may be fraught with most serious consequences, and that this affection should be treated with respect.

INFLUENZA: The infective microorganisms in epidemic influenza are also contained in the secretions of the nose and throat, and, whatever their true morphological character may be, whether the influenza bacillus is the true specific germ, or whether a combination of organisms (or an agent yet to be discovered) may be responsible for the disease, the infective organisms of whatever type are transmitted from the sick to the well by means of droplet infection.

DIPHTHERIA, too, is carried from the patient to others by the ejection of particles of secretion and membrane from the nose and throat in the acts of coughing, sneezing, speaking, or crying—also by the use of eating and drinking utensils infected by the buccal secretions of the sick. Virulent bacilli may exist for weeks in the mouths and throats of those who have recovered from the disease, and these carriers are an ever present source of danger to the community. No person should be released from isolation until the Klebs-Loeffler organism has been shown to be absent from his nose and throat by careful bacteriological examination, made two or three times at intervals of 48 hours. (Havard). Are we sufficiently careful in this regard in private or public practice?

MEASLES in American military life has been responsible for more deaths than all the other eruptive diseases put together. (Havard). The cause of the disease is unknown though it belongs to the class of filterable viruses. The principal complications among troops have been broncho-pneumonia, pleurisy, and otitis media. (Havard). To the first two of these complications the mortality in the case of young soldiers is chiefly due, the streptococcus hemolyticus being the offending organism in such broncho-pneumonias and empyemas in the immense majority of instances.

The causative agent in measles, whatever it may be, has been shown by Goldberger and Anderson of the United States Public Health Service to be present in the blood of monkeys, "at least a few hours before the eruption appears and for about 36 hours after." As the result of their observations, it has also been shown that the **causative agent is present** in the **nose and throat secretions** "during the first 48 hours of the eruptive period, and that it is absent from the desquamating epithelium." (Havard).

The patient is now considered as being alone the source of danger, and the possibility of there being "carriers" of the disease, or of a healthy person having anything to do with its transmission, has been authoritatively denied. (Havard). These findings are of vital importance in the epidemiology and prophylaxis of the disease.

SCARLET FEVER is held at the present time to be transmitted in identically the same way, being essentially a sputum-borne disease, and the latest view is that the **patient alone** is the source of the infection, the virus being conveyed through droplets from the nose and throat, the exfoliated epithelium and fomites having nothing to do with such transmission. (Vedder).

This view is most decidedly antagonistic to our former theories and opinions. It is also denied that a healthy individual can in any way carry the disease to a third party, as might be assumed from the ex-cathedra statement that the patient is alone the source of infection.

MUMPS, the causative agent of which is still unknown, and whooping cough caused as we well know, by the bacillus pertussis are conveyed from the sick to the well solely by infective droplets of secretion thrown out in coughing or sneezing, or by the direct infection of eating and drinking utensils through such secretions, or through soiled hands.

The last source of infection in the means just enumerated applies most pertinently to mumps, in which disease there is generally no cough. While the specific causative agent in this disease is as yet unknown the infection is considered due to a filterable virus present in the saliva.

Wollstein has been able to produce parotitis in cats by the use of filtered saliva, free from bacteria, from individuals sick of the disease. It is interesting to note that this infectious quality of the saliva is not present after the ninth day(11).

EPIDEMIC CEREBROSPINAL MENINGITIS is another most important disease conveyed through infection of the nasal and buccal cavities of the susceptible in exactly the same way. The infecting individuals may either be persons actually sick of the disease, or carriers, the latter being equally as dangerous as the former. Colonel Havard calls attention to the fact that, "Infection may result from the use of common eating and drinking utensils, contamination of food by soiled fingers, etc." The meningococcus after entering the nose or throat of a victim is now thought to enter the cranial cavity by absorption from the infected mucosa into the circulation, and through this means to reach the central nervous system.

Carriers play a most important role in the spreading of this disease, as we learned to our cost in our large camps during the World War. Overcrowding, fatigue, exposure to cold, poor ventilation, or other hygienic sins, may lessen the resistance and increase the susceptibility to this disease, and cause an outbreak in newly raised troops, or in-crowded factories, or other aggregations of individuals, the infective meningococcus being furnished by the ever present carrier.

ANTERIOR POLIOMYELITIS, in its epidemiology, stands in quite a close relationship to cerebrospinal meningitis. The organism has been isolated by Flexner, the colonies consisting of globular bodies as described by him(10). Cultures of the tenth generation inoculated into monkeys cause in them the typical experimental disease(12). The specific germs exist in the brain, spinal cord, blood and nasopharyngeal secretions of the sick(12). The experimental disease is easily caused in monkeys by the application of the virus to the nasal mucosa since the virus passes "from the central nervous system" of the sick animal to the mucous membrane of the nose, and vice versa(12).

From analogy we may assume that these facts are true in the human subject, and that droplets of secretion sprayed out by the patient in sneezing and coughing must be considered the most fertile means of infection. A valuable point, this, in the prophylaxis of the disease!

This disease, while most common in the very young, is by no means so limited during epidemic extensions, for young adolescents such as college students, young soldiers, and others, may, under such conditions, as in the great epidemic of 1916, become victims.

PRACTICAL CONSIDERATIONS AND CONCLUSIONS.

The grouping of the important affections enumerated under the single classification of sputum-borne diseases is most useful and pertinent in that it at once calls attention to their common means of transmission without regard to the anatomical systems of the body involved. The very designation of the group points to the proper means of prevention both on a small and large scale. These means of prophylaxis may be enumerated as follows:

1. Good ventilation, by which means a plentiful supply of oxygen is secured, and the vitiation of the atmosphere kept within safe limits, while the resistance of the individual is maintained at par in so far as may be possible by such means.

2. Measures intended to check the direct interchange of infected particles of secretion from the head cavities in hospital wards, and in dormitories of any kind, as in institutions or barracks, by securing proper floor and cubic air space per individual, and by the use of cubicles, which can be easily and cheaply constructed. The use of gauze masks in the case of those in immediate attendance upon the sick is of value.

3. Means to prevent the carrying of infection through eating and drinking utensils contaminated by secretions from the mouths, throats, or possibly noses, of the sick, or of carriers, or through soiled hands conveying such secretions to such utensils or articles of food. These measures would apply with special force during epidemics to hospitals, hotels, restaurants, and general messes.

4. Temporary civic ordinances intended to prevent the interchange of buccal and nasal secretions through crowds, during epidemic extensions of these diseases, by a rigidly enforced closing of churches, schools, theatres, and public halls of every description.

5. In the case of the prevalence of diphtheria, mumps, whooping cough, measles and scarlet fever, a rigid morning inspection of school pupils before their admission to class rooms by competent school nurses in the absence of physicians, so that victims of these diseases may be detected in the very incipiency of the infective periods, and at once be remanded to a strict personal isolation—this provision to be carried out where the epidemic visitation is not of sufficient gravity to require the absolute closing of the schools.

6. In the case of severe epidemics of the diseases just enumerated, the institution of similar measures in factories, department stores, etc., where many young people are employed.

7. The removal, under civil ordinance, from all hotels, restaurants, clubs, or public messes of employees affected with active tuberculosis, as, in the acts of preparing and serving food they may thereby transmit virulent tubercle bacilli, and promote lymp node

infection with all that such infection may entail.

8. The abolition of the common drinking cup in all places and upon all occasions.

9. The warning of the public against the common use of tobacco pipes, or the filthy habits of biting off a "chew of tobacco" from the social "plug" passed around, or of indiscriminate spitting in public places.

10. The insisting upon greater care on the part of nurses, both in public and private practice, in rendering innocuous the secretions and discharges from the eyes, noses, mouths, and throats of those sick of the sputum-borne diseases, by receiving these discharges on cloths, which must be burned.

11. More careful instruction of the nurses in charge of such cases concerning the danger of conveying these diseases through hands soiled with the infectious secretions referred to, such infective transmission being virtually direct from person to person.

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INTESTINAL DRAINAGE IN INTUSSUSCEPTION.*

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Of the many serious emergencies with which the general practitioner has to deal, intussusception is one that will tax his diagnostic and therapeutic skill to the limit. A defective congenital development, the tender age of the patient and an indefinite early symptomatology, produce a combination of difficulties hard to combat.

On account of beginner's luck in seeing something new we wish to report the following cases:

Male, H. A. Age, two. Was seen about 5:30 P. M., July 7th. His chief complaint seemed to be pain in the abdomen. He awoke the morning of July 6th with pain and went back to bed where he remained the greater part of the day. He vomited several times on this date and also the day he was first seen. His mother had given him an enema and he passed a quantity of watermelon seeds. When seen the evening of the 7th his temperature was 100°, pulse 130. He looked sick and wanted to be left alone. The face had a peculiar pallor as if scared. The lower limbs were drawn up and extending them was objected to. Gurgling in the abdomen had been noticed by the mother several times during the day. Distension of abdomen was not marked. Palpation of abdomen was objected to in the lower right quadrant. An indefinite mass could be outlined in this area. Rectal examination showed nothing definite, due either to our lack of experience in examining the rectum of children or because no mass was present.

At 9 A. M., July 8th, his temperature was 99.4°, pulse 130. Had slept fairly well during the night, crying out occasionally from pain. Mother had given him a second enema during the night without results. Has no definite tenderness this morning, and does not object to palpation of the abdomen. A slight bulging of the abdomen below and to the right of the navel was present. No mass could be felt on palpation. Rectal examination was negative. White cell count was 12,000. Child looked very sick and requested to be left alone. Consultation was called and exploratory laparatomy was advised.

The abdomen was opened about 11 A. M. The peritoneum was dark colored and considerable fluid was present in the abdominal cavity. An intussusception disclosed itself immediately in the lower right quadrant. The distal portion of the ileum had passed into the secum. The part of the ileum above the constriction was enormously distended. In reducing the intussusception by traction and the "milking process," the outer coat of the intestine was torn in two places. These rents in the wall were closed with fine silk sutures. The part of the ileum that had passed into the cecum was completely collapsed and the opposing surfaces seemed almost adherent. The gas above did not distend the released intussusceptum, indicating either complete loss of tone to the upper bowel or that the opposing surfaces of the intussusceptum were adherent. In order to secure drainage of the bowel and permit escape of the accumulation of toxic products in the intestines an opening was made just above the constriction. A small rubber tube was inserted similar to a tube used in draining the gallbladder, thus securing direct drainage of the bowel through the abdominal wall. The abdomen was closed with through and through sutures. Salt solution was given per rectum to reduce the dehydration that had taken place by vomiting and lack of absorption from the blocking of the alimentary canal.

Gas and fecal matter began to discharge from the tube in the afternoon. The child did not look so sick and seemed fairly comfortable. Ordinary surgical care was given for the next few days. On the fourth day the tube came out of its own accord. Gas and fecal matter discharged freely over the abdominal wall. The fifth and sixth day the child refused to take nourishment and seemed to be losing strength. Rectal feeding was instituted for one day in additional to oral feeding and from then on convalescence was uninterrupted. The child was discharged from the hospital at the end of two weeks. Fifteen days after enterostomy the wound had closed completely. The youngster gained rapidly in weight and has had no intestinal disturbance since.

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*Read before the Cedar, Dixon, Dakota, Thurston and Wayne counties Medical Society, April 27, 1921.

Case 2. Male, H. B. Age five months and ten days. Had always had mother's milk. Inclined to having diarrhoea. Bowel movements usually had foul odor. Fairly well controlled by giving him buttermilk once or twice a day. This youngster was first seen Nov. 30th at 2 P. M. Nov. 27th had an attack of diarrhoea. Had five or six loose foul smelling stools that day. Mother gave him a dose of castor oil morning of Nov. 28th which checked the diarrhoea. Nov. 29th had one normal bowel evacuation. That evening the child was very uncomfortable and seemed to have colic. Enema was given without relief. On account of pain and discomfort did not sleep till 3 A. M. Restless while sleeping and woke up three times from 3 A. M. to 8 A. M., crying out as if in great pain. Since waking up last time has paroxysms of pain. Bowels moved spontaneously about 10 A. M. Mother gave him another enema thinking the pain would be relieved thereby but without results.

When seen the baby did not look very sick. Temperature was 98°, pulse 100. Examination seemed to show a mass in the right side of the abdomen. Not especially tender. Rectal examination gave an impression as if a soft polypoid mass was present high up in the rectum. About 3 P. M. baby vomited several times. Vomitus acid to litmus and bile stained. White cell count 10,000. Baby was sent to hospital for further observation with the possibility that an intussusception was present. It was given a high enema at 9 P. M. which returned blood-stained. Vomited repeatedly during the night and distension became noticeable. Cried out every ten or fifteen minutes though apparently asleep. Mass was not palpable morning of Dec. 1, on account of distension. The white cell count had risen from 10,000 to 20,000 over night. The child looked sick and was very restless. The abdomen was opened about 9 A. M. Free fluid was present in the peritoneal cavity. The intestines were moderately distended. The terminal part of the ileum had passed into the cecum a distance of six inches. No adhesions had yet formed and the intussusception was easily reduced without any complications. A small rubber tube was put in the intestine just above where the constriction had occurred. This permitted the escape of accumulated gas and the abdomen was easily closed with interrupted sutures. The baby nursed the breast that afternoon and seemed much more comfortable than on the preceding day. The tube came out on the third day. The abdominal wall became infected from fecal discharges. Owing to this the wound did not close till three weeks after operation.

Several weeks later the child developed difficulty in taking mother's milk which tested only one half percent fat. On account of the possibility of adhesions having formed producing a stricture of the intestine he was given a barium meal and plates taken of the intestinal tract every hour. The meal passed through in fourteen hours thus eliminating this possibility. A suitable food mixture was found and the child weighed three pounds more two months after the operation than before he was taken ill. Analysis of these two cases will show the dissimilarity in symptomatology when the pathological condition was found almost the same on the operating table.

	1st Case	2nd Case
Previous history	Negative	Inclined to diarrhoea
Onset	Sudden, during sleep	Followed catharsis
Gastric symptoms	Vomited from onset	Vomited late
Diet indiscretion	Watermelon seeds	None
Temperature	100°-36 hrs. after onset	98°-18 hrs. after onset
Pulse	130	100
Pain	Continuous	Colicky and paroxysmal
Gurgling	Present from onset	Absent
Mass in abdomen	Doubtful	Present from onset
Rectal examination	Indefinite	Resembles polypoid mass
Leucocytosis	10,000	10,000 to 20,000 in 12 hrs.
Prostration	Marked	Marked
Distension	End of 60 hrs.	End of 18 hrs.

Marked prostration was the only symptom common to both cases.

In commenting on this condition we wish to quote from Brenemen's article on, "Abdominal Pain in Children" in the March issue of Surgery, Gynecology and Obstetrics. "Pain in intussusception is a variable quanity. It cannot be emphasized too strongly that severe paroxysmal pain should never be considered a desideratum to a diagnosis or a suspicion of a diagnosis of intussusception. The severe shock commonly pictured is frequently absent, possibly due to a long mesentery. While rather severe intermittent pain probably occurs in every intussusception it has been my experience in the majority of cases at the time I have seen them, pain has not been a distressing symptom. Often there is only a slight squirming, or wincing, or changing position at fairly regular intervals. In so many of these cases in older infants there is on the contrary a peculiar psyche that is of diagnostic importance. The child lies abnormally quiet, has a serious intent look, not of pain but of preoccupation, and is not normally interested in its environment. In others there is a definite toxic look accompanied by some rise in temperature. Tympany is usually quite absent. Of great diagnostic value is the escape of a small amount of turbid, reddish, grayish, thin jelly like substance after the retreating finger following a rectal examination. The absence of severe pain and tympany should never leave one to omit a careful search for the characteristic sausage shaped tumor."

In other words we have a multiplicity of symptoms that change with kaleidoscopic rapidity. The picture changes rapidly over night and though apparently better, as pain may have disappeared due to gangrene of the intestine, the pathological condition is very much worse. This was present in the first case as the child readily permitted examination in the morning, when he strenuously objected to having the abdomen touched the evening before. The parents would have interpreted this as a good omen had it not been that he looked so sick.

The etiology of this condition is probably due to developmental defects that take place in the alimentary tract. The first is the incompetency of the ileocecal valve in childhood. When foreign bodies, as watermelon seeds, accumulate at this area it is easy for them to act as a tumor and produce invagination of the intestine. Strong catharsis or severe attacks of diarrhoea producing a strong peristalsis of the intestine. drives the small intestine into the cecum.

The treatment is both medical and surgical. If intussusception is suspected, it is permissible to give a high enema elevating the hips so as to procure the assistance of gravity in having the solution pass to the highest part of the alimentary tract. If it returns blood stained and the child has not been relieved, no time should be lost in instituting surgical measures. It is the toxaemia that produces the fatal result and will do so rapidly without increasing the symptomatology.

In the above cases we took one step more besides reducing the intussusception and trusting to a paralyzed gut to take up the burden thrown upon it. A small rubber drainage tube was passed into the intestine above the area of constriction thus permitting the escape of gas and relieving the bowel from toxic material that accumulated during the period the obstruction existed. The opening into the bowel is preferably made with a large trocar, as in this way the various layers of the intestine are separated and not cut as with a knife or other sharp instrument. The trocar is removed and a rubber drainage tube passed through the cannula. After the tube is passed into the intestine the cannula is slipped off over the distal part. The tube is secured with a purse string suture, thus guarding against leakage into the peritoneal cavity before adhesions have formed and protecting it against infection. If the peritoneal cavity has been contaminated or there is danger of leakage from the tube in the intestine, it is well to pass a second tube into the peritoneal cavity thus securing drainage from this area.

This operation is not so formidable as resection of a partly gangrenous bowel in a child that is usually too young to withstand extensive surgical procedure, and at the same time is in a condition of lowered resistance on account of absorption of toxic material from a strangulated alimentary tract. In case resection should have to be done later, the surgeon can choose his own time when no emergency exists and the child is not overwhelmed with toxins.

THE PNEUMOPERITONEUM AS AN AID IN OBSTETRICAL AND GYNECOLOGICAL DIAGNOSIS.*

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As Dr. Reuben Peterson (1) at the University of Michigan Medical School has pointed out, the pneumoperitoneal roentgenogram is a very valuable aid to accurate obstetric and gynecologic diagnosis. In a personal communication he states that he believes the method has come to stay and the man who is specializing in obstetrics and gynecology should have a thorough knowledge of the technique of the procedure. In the clinic at Ann Arbor they have examined over 400 cases in this way and have had no sign of any peritoneal irritation. In suitable cases, and with the proper technique, gas inflation is free from danger (2). Dr. Peterson combines the transuterine with the transperitoneal methods of producing artificial pneumoperitoneum and the method has become established as a valuable adjunct in gynecological and obstetrical diagnosis.

Dr. J. C. Rubin (3) as early as November 3, 1919 used the gas inflation method to show the patency or nonpatency of the Fallopian tubes and his apparatus is described in the February number of the Journal of Radiology-1922. Up to that time a total of 350 insufflations had been done with no untoward results.

Contraindications (4).

(1) Presence of pus in genital canal $\begin{cases}\text{urethra}\\ \text{vagina}\\ \text{cervix}\end{cases}$

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(2) Presence of fever due to pelvic inflammation

(3) Even in the presence of an inflammatory process, if there is no fever, the introduction of 150 cc. of gas at 200 mm. pressure will cause no harm.

(4) Theoretically the danger of embolism. Rubin tested this problem by actually injecting 350 cc. oxygen into the vein of a dog and it did not cause the turn of a hair.

(5) Pregnancy and menstruation.

Dr. LeRoy Sante of St. Louis has done about two hundred cases of pneumoperitoneum with no untoward effects from the introduction of the gas in a single case.

At the meeting of the Radiological Society of North America at Chicago December 7, 1921, this subject was thoroughly discussed and only five deaths could be ascribed to this procedure from statistics collected over the United States and these were due to inexperienced operators in this new field.

Dr. Peterson summarizes in one of his earlier papers (2).

(1) The apparatus for gas inflation and pelvic roentgenography is simple and inexpensive.

(2) Since carbon dioxide gas is absorbed in one half hour, it is preferable to oxygen gas for inflation, since the latter gas may not be absorbed for several days.

(3) Whenever possible the transuterine should be chosen in preference to the transperitoneal route for the introduction of the gas, because of the valuable information it furnishes regarding the patency of the Fallopian tubes.

(4) Excessive quantities of gas cause great pain. Experience has shown that for ordinary use, 1000 cc. of gas will cause only moderate discomfort and are sufficient for a good X ray picture.

(6) With proper position (knee chest as shown in figure 2) and the ray directed perpendicularly to the plate in the axis of the pelvis, the pelvic organs are clearly shown by roentgenography.

(6) Experience with the pneumoperitoneal pelvic roentgenography will enable the observer to diagnosticate with great accuracy the pathologic change in the pelvic organs.

(7) There is every indication that pregnancy can be diagnosticated as early as the sixth week. After the sixteenth week the fundus has reached the abdomen and is no longer in the field of vision. In the latter case the diagnosis is usually obvious and the examination purposeless.

(8) Bimanual pelvic examination and pelvic pneumoperitoneal X ray are not antagonistic diagnostic methods. Each is valuable and their value is enhanced if they be used in conjunction, each acting as a check upon the other.

Before any attempt is made to use the pneumoperitoneal X ray examination, a careful history is elicited, and a thorough physical and bimanual examination made, with the findings noted. If the patient complains of sterility, we want to know whether her Fallopian tubes are closed off and so the transuterine method of gas inflation is the one of choice. If the patient has what we consider a pyosalpinx or an ovarian cyst, is running no temperature, the transabdominal route is resorted to. We have found that the pneumoperitoneal roentgenogram is a great aid to preoperative pelvic diagnosis. Many ask what is there you can show by this procedure which you cannot feel by the ordinary vagino-abdominal or recto-abdominal examination? I can best answer this question by quoting from Dr. Peterson's (5) address to the Chicago Gynecological Society. "After some 30 years experience in a special field of work I took it for granted there was very little to be felt in the pelvis that I could not feel. I must confess that after my experiences with pelvic roentgenography my eyes have been opened to the fact that there are possibilities in relation to preoperative diagnoses I never dreamed of."

In other words much more definite information can be gained by these pictures as to the exact size and location of the so-called "pelvic inflammatory mass," "thickened broad ligament," "chronic salpingo-oophoritis" and other rather unfortunate or slipshod diagnoses we are all prone to make. It is also a satisfaction to these patients to be able to give them some tangible evidence as to what is causing their ailments, just as much as it is to the patient who has a bladder or kidney stone, a punched out duodenal ulcer or a tuberculous lesion in the lung which can be shown on the X ray plate.

The accompanying photos (Figs. 1 and 2)

will show the apparatus we use and the position of the patient to get these pictures of the pelvic organs and pathology in this region. Most of the credit for the interpretation of the X ray findings, and the proper position of the patient for taking these pictures belongs to the late Dr. Van Zwaluwenburg (6) of Ann Arbor, who described how the pelvic organs are represented on the plate by optical cross sections at the point of tangency of the projecting rays (Fig. 3).

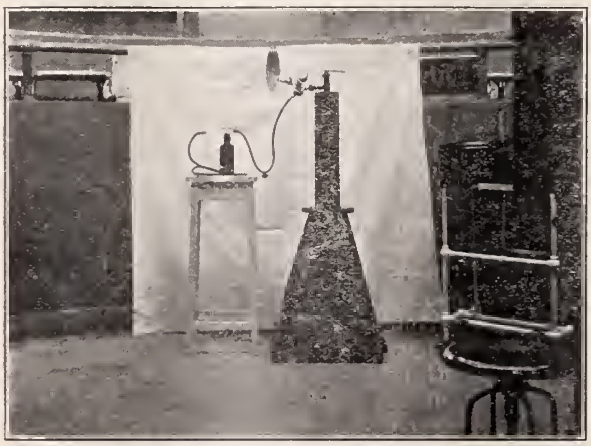

Fig. 1. Apparatus for the injection of the carbondioxide gas; ordinary commercial tank—pound pressure gauge. Tycos manometer-Rubber tubing—bottle of sterile water—Keyes Ultzmann syringe or spinal puncture needle.

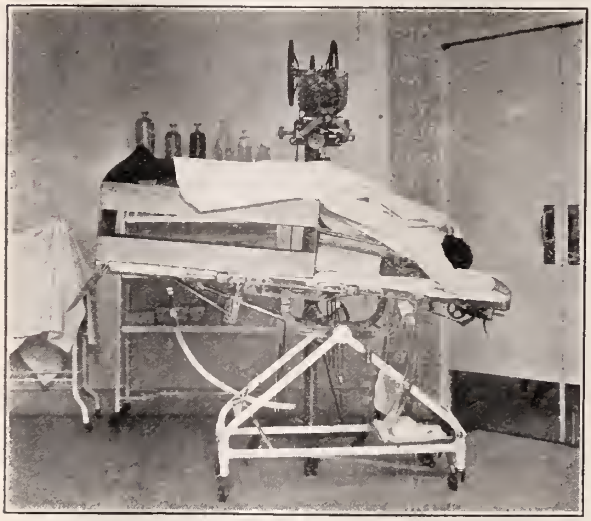

Fig. 2. Inclined position of patient (angle of 20°) for the best pictures— so that the direction of the rays are in the long axis of the pelvis.

The uterus is nearly always clearly outlined and its position, size and shape can be determined. Many times two cross sections of this organ will show, that of the body and one of the isthmus or supracervical region. It has been found that the isthmus is greatly enlarged and extends more into the broad ligaments in cases of pregnancy and by this sign alone it has been possible to diagnosticate pregnancy by the X ray as early as the 6th week and before softening can be determined by the examining finger. The illustration (Fig. 4) is of a six weeks' pregnant uterus (Mrs. P.).

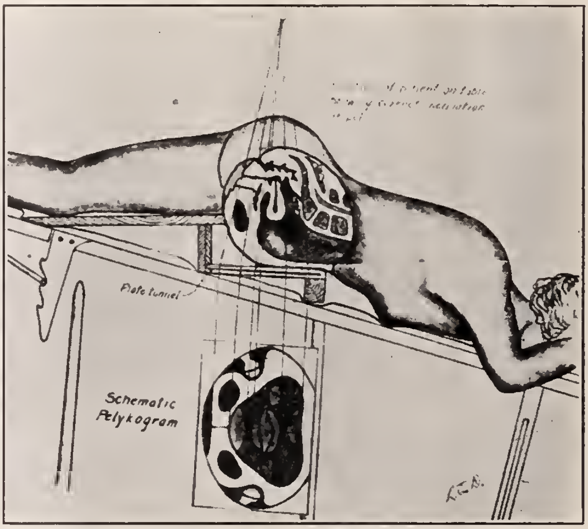

Fig. 3. Correct inclination of pelvis with schematic pelykogram showing theoretical projection of pelvis organs. Partial knee-chest position secured by prone position of patient on frame and a 20° inclination of the table. (From Peterson, Amer. Journal of Gyn. and Obst. Oct. 1921).

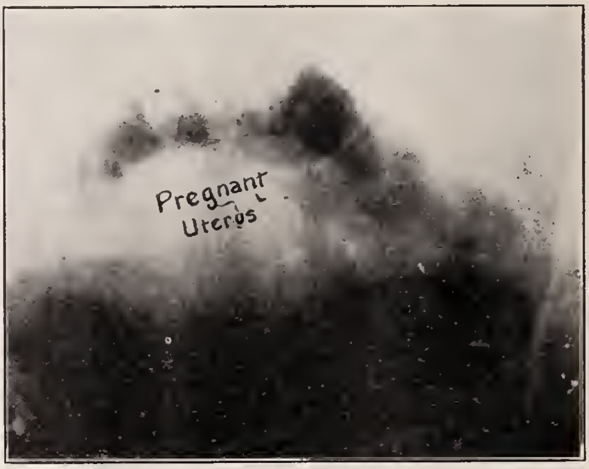

Fig. 4. Pneumoperitoneal X ray of six weeks pregnant uterus showing normal and posterior pelvic pouches filled with gas with linear shadows of broad ligaments extending peripherally to pelvic wall.

Pus tubes can be particularly well shown on the X ray plates (Figs. 5 and 6).

It is true that in many instances we can gain a fairly accurate idea of the size of these inflammatory growths by palpation alone, but in cases of very extensive pelvic inflammation where the tubes are adherent

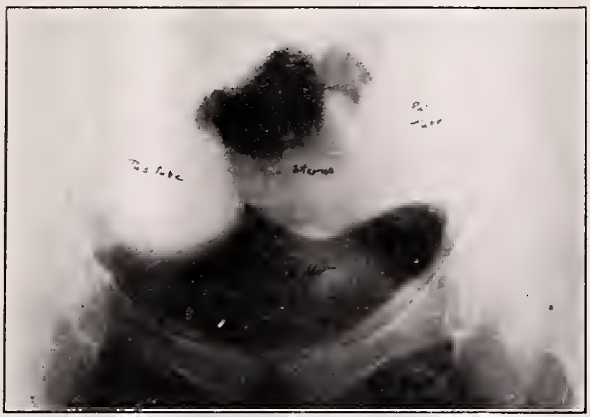

Fig. 5. Large pus tube right, smaller left.

to the sides of the pelvis and covered with plastic exudate or when there is a board-like rigidity extending laterally from the cervix to the pelvic walls due to pelvic cellulitis-clinicians have long realized the difficulties of palpation.

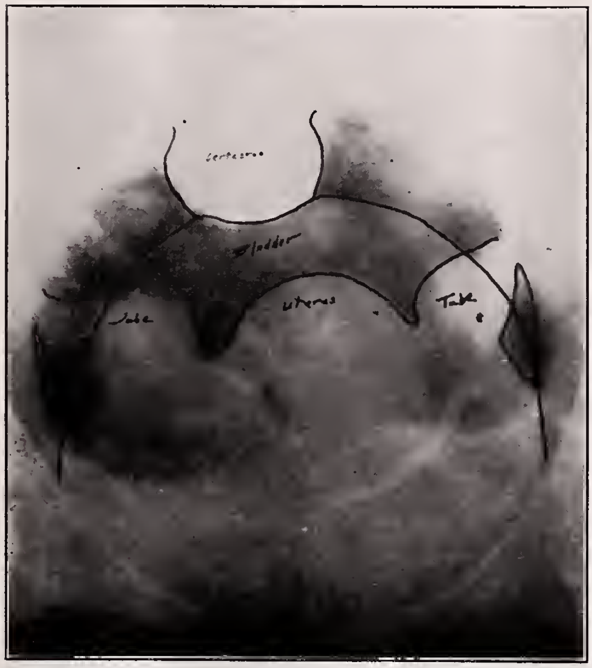

Fig. 6. Double pyosalpinx—tubes nonpatent. Bladder shadow superimposed over uterine shadow—since bladder was full. Bladder shadow good in Fig. 5.

Dr. Van Zwaluwenburg (6) remarks that experience with ectopic pregnancy has not been altogether happy. This is principally because the secondary changes which ensue so rapidly lead to confusion with inflammatory conditions. "The demonstration of the extrauterine mass is invariably easy, but the proper interpretation of this obvious shadow is difficult. On the other hand, it has twice been our good fortune to have corrected the gynecologist's diagnosis of ectopic pregnancy by demonstrating a normal pregnancy in the normal situation, but complicated by an extra uterine condition."

Dr. Van Zwaluwenburg (7) showed that when the perfect degree of elevation of the hips had been attained and the direction of ray was in the long axis of the pelvis, both the anterior and posterior pelvic pouches were empty of everything but gas. In the presence of pathology either one or the other may be filled with inflammatory exudate or adhesions or incarcerated bowels and omentum with resulting displacement of the uterus and broad ligaments which form the transverse partitions of this portion of the pelvis. Such displacement with obliteration of either of the pouches is one of the most striking features of inflammatory disease of the pelvis.

When entirely empty, the bladder shadow is scarcely recognized on the posterior surface of the pubic bone. When distended, however, it may be seen as a rounded shadow of no very great importance exactly where one would expect to find it, and its recognition is never a matter of great doubt. (Fig. 5).

Extending on either side of the uterine shadow are the broad ligaments, narrow linear shadows, particularly well shown in the picture of the six weeks pregnant uterus (Fig. 4). Centrally they embrace the uterine shadow and peripherally fuse with the pelvic wall.

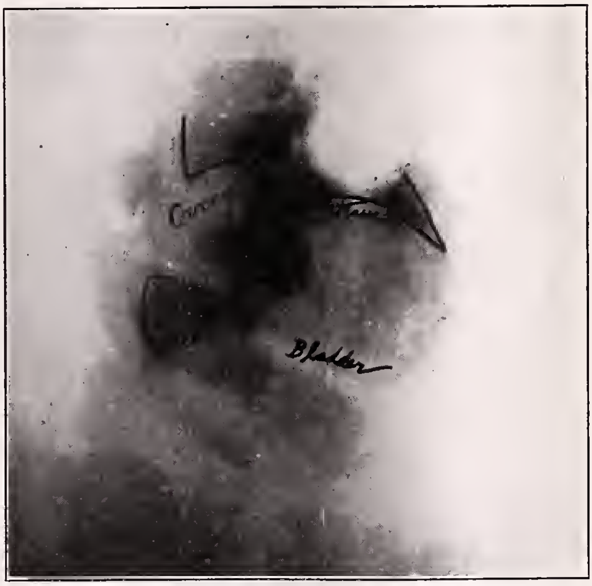

Fig. 7. Gas is seen present in the uterine cavity—light triangular area with uterine shadow. Right tube patent and normal

Round ligaments are not recognized.

Normal tubes are best seen when some gas has been passed through the uterus and out into the tubes—one of our slides shows the tube especially well. (Fig. 7), (Fig. 8).

If the patient is in the prone position and the table is tipped or the patient's hips elevated to the proper degree to give a forward and downward displacement of the appendages the ovaries can be shown on the X ray plates. (Fig. 8).

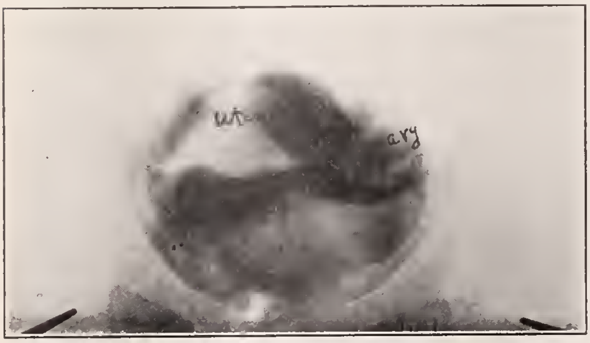

Fig. 8. Shows enlarged ovary and tube. Bladder shadow superimposed on uterus.

INTRODUCTION OF THE GAS.

The transuterine inflation is accomplished by means of the introduction of a Keyes Ultzmann syringe through the cervical canal after it has been swabbed out with iodine. The flow of gas is controlled by the pressure gauges, the first one being a pound gauge, the second an ordinary Tycos manometer. The rate of flow is watched by the bubbles passing through a bottle of sterile water. If the gas does not pass through the tubes, due to nonpatency, the pressure will gradually rise to 200 mm. and we disconnect the rubber tubing or shut off the gas as no greater pressure is ever used to force the gas through. Several attempts should be made, however, to see if the gas will go through and occasionally it is a good plan to withdraw the syringe to see if perhaps the end of the syringe has been clogged up by mucus or bloody discharge. If the tubes are permeable or patent there will be a steady rise of the manometer pressure to 80° or 100° and then a sudden drop to 30° or 40° pressure when the gas goes through to the abdominal cavity, at which reading it will continue to flow into the abdomen until there is a sufficient amount to take the picture.

If you find the tubes are closed due to inflammatory lesions and it becomes necessary to use the transabdominal route for the introduction of the gas, a small area of skin is painted with iodine solution either to the right or left of the midline about an inch and one half below the umbilicus. Of course, if the patient has an operative scar on either side, one keeps as far away from any intra-abdominal adhesions as possible—and our pneumoperitoneal pictures have shown us that a patient cannot have a laporatomy performed without having some adhesions to the anterior abdominal wall.

After the skin is sterilized, a small amount of local anesthetic can be used, making just one small wheal. Then the abdominal wall is picked up in the left hand, made tense and the lumbar puncture needle introduced through the skin and subcutaneous tissue, then through fascia and muscle and finally through the peritoneum at which time the patient will experience a sudden rather sharp pain for a second only. The simple expedient of observing that no blood escapes from the needle insures against the injection of gas into the circulation. The gas is then introduced slowly so as not to cause the patient any undue discomfort. The abdomen is then percussed to note how much gas is being introduced (not over a litre necessary) and generally when the liver dullness becomes obliterated, the patient will complain of some discomfort under the diaphragm and sometimes a little pain in the shoulder region. At this time the needle is withdrawn, the patient turned over on the abdomen, placed in the position in Figure 2 so that the angle of inclination is about 20 degrees with the horizontal. The Coolidge tube is placed over the buttocks and a screen placed under the belly, the patient instructed to take a deep breath and hold it for a few seconds while the X ray operator takes the picture. Placing the patient in this inclined position allows most of the gas to rise and accumulate in the pelvis and more completely surround the contents of the pelvis and fill the anterior and posterior pelvic pouches so that the outline of the pelvic organs will be most distinct.

When we use the screens the X ray men have found that a 6 inch spark gap—30 milliamperes for 2 seconds exposure gave the best results. In using the plain films we got the best pictures with six inch gap—40 milliamperes—12—15 seconds exposure. I am greatly indebted to Dr. Ballard and Dr. Tyler for their suggestions in this work. It was in conjunction and under the direction of Dr. Ballard and his assistants at the University hospital that this work has been done.

SUMMARY.

1. I wish again to emphasize that this rather new procedure as an aid to diagnosis is simple, safe, certain and cheap, does not require but ordinary common sense—precautions and skill, requires no complicated apparatus.

2. It in no wise attempts to supplant the careful bimanual examination but simply acts as a check. A cardinal rule to follow is never to use the pneumoperitoneum when the same information can be obtained by simpler means.

3. The patient needs no elaborate preparation. It is best to have the bladder empty and the lower bowel cleaned out with an enema.

4. The instruments used for the gas inflation are, of course, scrupulously sterilized before use.

5. To settle the question of whether the carbon dioxide gas as furnished in the ordinary tanks contained bacteria, Peterson had numerous bacteriological tests made as the gas emerged from the needle or cannula, and in every instance the cultures showed no growths.

6. The patients are able to leave the hospital in 20-30 minutes after the pictures are taken as the carbon dioxide is absorbed very quickly. The patients have shown a great interest in seeing their pelvic pathology on the X ray plate.

7. The gynecologist is placed on his mettle if he knows his findings are to be checked up in this graphic way. He is better enabled to make an accurate diagnosis with the aid of the pneumoperitoneal X ray and state with even greater positiveness when an operation is indicated and when the symptoms can be made to disappear by more conservative methods of treatment.

8. Much more work must be done before the true value of this aid to diagnosis is determined. Only a few thousand examinations of the pelvis have been made since Stein & Stewart (7) in 1919 demonstrated that the X ray examination of abdominal and pelvic organs could be made after the introduction of air or gas into the peritoneal cavity. This work is just beginning in comparison with the tens of thousands of gastrointestinal X rays. The valuable information the pelycogram furnishes as to the condition of the tubes and its bearing on the causes of sterility, cannot be obtained in any other way.

9. In doubtful cases why should we operate on the pelvis without a pneumoperitoneal X ray any more than we would on the stomach or upper abdomen without a roentgenogram? Pelycography will scarcely develop into a routine procedure or supplant other methods of examination but it will occupy an honorable position in the armamentarium of the careful and conscientious surgeon.

10. These remarks are for those in a receptive mood, ready to take advantage of any safe procedure capable of aiding in diagnosis and not, as Dr. Peterson said, to "those who are never guilty of preoperative mistakes in diagnosis, to those who are backed up by three or four diagnoses, so that there is little chance of missing them all; nor to the man who will deliberately lie out of a mistake in diagnosis."

TREATMENT OF HYPEREMESIS GRAVIDARUM BY THE DUODENAL TUBE.

The deduction drawn by Charles E. Paddock, Chicago (Journal A. M. A., May 27, 1922), from his case are that, by the applied use of the duodenal tube in early stages of hyperemesis gravidarum, the necessity for emptying the uterus for this disturbance may be reduced to a minimum. This method of treatment not only relieves the concern about the loss of life to the mother, but secures the life of the fetus as well. While, in the treatment, the passing of the tube is comparatively, simple, still, to insure the best and quickest results, the cooperation of the patient with the physician is necessary. After the tube has settled into place—it takes from four to twenty-four hours—the rest of the cure is simple. The principal indications for the use of the tube are the loss of weight (due to starvation) or the dehydration of the tissues, in other words, the depleted condition that arises from excessive vomiting, of hyperemesis gravidarum.

A Nebraska internist whose opinions we all respect, after hearing both sides of the discussion of the goitre problem at the recent St. Louis meeting, said that he had concluded the internal medicine men did not know what they were talking about.

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Vol. VII July, 1922 No. 7

THE SEVENTY-FOURTH ANNUAL A. M. A. MEETING.

The registration of the St. Louis meeting of the American Medical Association totalled 5,174, of which number 72 were from Nebraska. The Presidential address of Dr. G. E. De Schweinitz, a classic, delivered in the Odeon theater to a crowded house was a keen disappointment to the audience, for the speaker's voice did not carry forty feet directly in front of the stage, and one third of the people left the theater in disgust during the delivery of the address.

The election of Dr. Ray Lyman Wilbur, Palo Alto, California, the head of Leland Stanford University to the presidency caused much comment and caused many to exclaim "Who is he?" It is certain that the rank and file of the membership would have preferred a popular medical idol to an almost unheard-of college president, not in practice. By way of explanation it is stated that the president elect was until two years ago, Dean of the Leland Stanford medical school, and that he stands for the better things in medicine.

The House of Delegates passed resolutions favoring more liberal rules toward physicians prescribing alcohol as a medicine, also, asking the National Red Cross to cease welfare activities except among veterans of the World War.

The sectional meetings were for the most part crowded to capacity, of unceasing interest and listened to with rapt attention. The outstanding numbers on the program were the symposiums on goitre and peptic ulcer, both subjects discussed from the medical and surgical standpoints by the masters of the profession. Perhaps nothing elicited as much interest.

The President's reception and ball was a very enjoyable affair.

The entertainment provided for the visiting ladies was varied, of the highest order and was thoroughly enjoyed.

Dr. A. R. Mitchell, was reelected one of the trustees of the association.

The Nebraska delegates were on duty at every meeting of the House and Dr. A. D. Dunn was named a member of a committee.

Nebraska physicians on the program were Drs. Palmer Findley, H. W. Orr, J. B. Patton, A. F. Tyler.

STEFASSON, SCURVY AND THE VITAMINES.

Quite unexpectedly it became the privilege of the editor to meet and converse with Vilhjalmur Stefansson, the greatest living arctic explorer at the university class day reunion at Iowa City, June 5.

Stefansson has the record of the longest continuous length of time—5 years—spent in the arctic, during which time he demonstrated man's ability to live on the resources of the hitherto unexplored far north, contrary to the belief of the Esquimaux and all previous arctic explorers; there being an abundance of animal life such as ovibos, caribou, polar bear, seal and some water fowl.

His book, "The Friendly Arctic," a surpassing human interest story published last year contains much of interest to the medical profession, for his experiences and conclusions in a measure upset our theories and beliefs about scurvy, antiscorbutics and the vitamines.

Briefly, his conclusions are, that salt on meat is unnecessary and a menace to health; that man can live indefinitely and thrive on a wholly meat diet without salt, if the meat is cooked slightly underdone or eaten raw; and that if these precautions are observed the fresh vegetables, lime and lemon juice antiscorbutic theory falls by the wayside. No scurvy occurred in those members of the party who lived on seal and bear meat without salt, while several members of the party separated for a time from Stefansson and who had access to a cache with an abundance of salt meats and canned vegetables and who lived on the cached provisions to the exclusion of fresh meat promptly contracted scurvy.

POPULAR MEDICAL EDUCATION.

Specific instances at times may incline us to the belief that a little knowledge is a dangerous thing especially when applied to the medical knowledge which has been acquired by the laity. This danger however, comes from the smallness of the scope of the knowledge and at times from its inaccuracy. The avoidance of the danger lies in increasing the scope and accuracy of the medical information supplied to the public, as it is obviously undesirable and impossible to take the other alternative and suppress the little knowledge which at present reaches the public.

The medical facts indeed which are presented to the public, are gaining both in quality and in quantity, and in different forms of expression. Most of the dailies carry an editorial column regularly, in which subjects of medicine and hygiene of general interest are treated generally in an able, though in a somewhat desulatory manner. Medical societies, national, state and local all have their committees on publication which however, rarely funtionate. The A. M. A. and different societies as that of the Prevention of Blindness, etc., have their pamphlets which have however, only a limited distribution. Community centers are reaching many with talks, both interesting and practical. Officers of different boards of health have wide publicity given to their efforts in maintaining the public health. A few scattered attempts are made by individuals in an effort at real service or from selfish or mixed motives to popularize medical facts. Then there is the vast amount of misinformation carried in the advertisements of quacks and patent medicines which often contain amongst their mistatements just sufficient truth to make them plausible and dangerous.

The combined effect of all this information, both good and bad, has been to leave the public mind in a chaotic state in regard to the medical facts. I think that the crying need of the present time is the gradual ordering and arranging these facts and adding to them so that the public will have sufficient knowledge to cooperate with their medical advisors and boards of health. In order to accomplish this authoritative, information should be given out. I have interviewed the editors of three Omaha daily newspapers, and in every case received encouraging views from them. There was no selfish wish for exclusive rights. They all seemed to think simultaneous publication in all papers the wisest plan, and that short articles might be prepared in advance for weekly publication. They all showed that they were familiar with the faults which prevented many medical articles intended for the public from being popular. They stressed length, involved style with technical wording, unseasonable subjects. As to the scope it would be well to include articles on most subjects required in a medical education, chemistry, biology, bacteriology, pathology, materia medica, common diseases specialties. This broad scope could only be carried out by unselfish service on the part of university professors, practicing physicians, laboratory and research men in conjunction with an editor and his assistants, who would shape all the articles as to length and popular comprenhension.

The society promoting these articles could on their conclusion, publish them in book form and reach some of those who failed to read the periodicals. The knowledge would still remain little, but it would be more comprehensive, more reliable, and therefore, more useful to the individual. I am sure men would respond to the call of the public good. The aftermath of the war is showing itself in the accepted belief that advancement of civilization will only come from individual and collective public service, and most men are anxious to show their belief by doing their part. I think this state with its two universities, the ability of the profession, the broad minded attitude of its great newspapers, and the high standard of this, our official organ, is well qualified to be a pioneer in an effort to carry out this manifest duty.

—H. B. LEMERE.

THE CONFERENCE OF COUNTY SECRETARIES

The conference of county secretaries held during the recent meeting of the Nebraska State Medical association was attended by over thirty doctors. The problems, trials and tribulations of the man behind the line were discussed for over five hours and the consensus of opinion was that each one had been able to broaden his views and get a better grasp of the problem how to maintain the membership of each county society at its maximum.

One county reported one hundred percent membership. This county has a "go-getter" of a secretary on the job every day of the year. It goes without saying that this county has regular, enthusiastic meetings and that every doctor feels it to his personal interest to be present to add and absorb his mite. It was brought out that good fellowship develops and grows in the county medical society; that it is not necessary to have strictly orthodox medical papers read, but that it is possible to keep up with the times by having some of the younger men demonstrate one or several of the newer laboratory tests, or to develop any other subject that happens to be of particular interest to a number of the doctors of the county.

All in all, each one received many ideas and absorbed "pep" and returned home with the resolution to feature better meetings during the coming year than had ever been done before.

Let each one help his county secretary to make the county medical society a real living thing in the community.

—A. P. Overgaard.

CONSERVATIVE TREATMENT.

The advance of medicine in all branches has been so rapid and our methods of diagnosis so greatly improved, that the gunshot prescription of years ago is no longer needed.

A new era in medicine is rapidly approaching on the horizon which brings with it the great danger of resurrecting this gunshot therapy, namely indiscriminate use of internal secretions.

I do not wish to ridicule the excellent scientific research and progress accomplished in internal secretions, for it has added greatly to the advance of medicine, especially in the last ten years. As time goes on it will undoubtedly unfold many new and valuable facts as an aid to diagnosis and treatment of disease.

The rational use of internal secretions has been of great assistance and will continue so if it is not abused.

It is wonderful to observe the improvement in a cretin or myxoedematous patient by the use of thyroid extract. It is also a pleasure to observe the great relief some women obtain during the menopause by the use of corpus luteum; however, it is very discouraging to see internal secretions heralded as a cure for many conditions for which they offer no relief.

Our knowledge of internal secretions, although greatly advanced in the last few years, is still in its infancy, and it is best to wait for further experimental research before resorting to the gunshot method of treatment.

The use of thyroid extract, pituitrin, adrenalin, and corpus luteum, where proper indications are present, is past the experimental stage and of great value, but we are not justified in saturating our neurotics with internal secretions where no therapeutic indications exist. Oftentimes we are tempted to try various combinations of organ extracts where other kinds of medication have failed; however, occasionally more careful physical examinations will eliminate the necessity of giving organ extracts.

The old adage "When in doubt, use potassium iodide" has been of less value since the use of the Wassermann reaction as a diagnostic aid; however, if one had to choose between a gunshot of internal secretions or potassium iodide, I believe the latter would be of far greater value.

Let us all recognize the great value of internal secretions, but do not let the influx of advertising literature persuade us against our clinical experience and better judgment.

—A. SACHS.

MILROY'S DISEASE.

To the Editor: Your note in the Nebraska State Medical Journal, June, 1922, page 218, calling attention to an article in the May number of Minnesota Medicine reporting a case of Milroy's Disease, appears to warrant a rather more extensive notice of Dr. Milroy's epoch-making contribution.

At the Twenty-fourth Annual Session of the Nebraska State Medical Society held in Omaha, May 10-12, 1892, Dr. W. F. Milroy presented a paper entitled "An Undescribed Variety of Hereditary Oedema." On June 1, 1892, Dr. Milroy presented the same paper before the Society of the Alumni of Charity Hospital, New York City. Dr. Milroy's paper was published in the New York Medical Journal, volume 56, pages 505-508, November 5, 1892, and in the Proceedings of the Nebraska State Medical Society, page 27, Twenty-fourth Annual Session.

Since the publication of Dr. Milroy's article considerable interest has attached to the disease. The best review which has so far appeared is that of Hope and French, pages 312-331, volume one, Quarterly Journal of Medicine. Hope and French report thirteen cases. The bibliography attached to this article contains twenty-three titles. This peculiar type of hereditary edema has been called Milroy's Disease by Olser, Hope and French and many other writers. Dr. Milroy's description shows distinct priority.

In Osler and McCrae's Modern Medicine, volume 6, pages 661-665, Milroy's Disease is fully described. One plate taken from the article by Hope and French is used.

In the Medical Clinics of North America, volume 1, Johns Hopkins number, pages 182-185, Dr. Lewis Hamman reports a case of Milroy's Disease.

In the Boston Medical and Surgical Journal, volume 184, pages 479-483, Painter and Bean report three cases of Milroy's Disease.

Faber, in an article in the Annals of Medical History, volume 4, page 34, entitled "Nosography in Modern Internal Medicine," says ".. and Osler, Beard, Huntington, Hammond and Milroy in America, all made weighty and primarily nosographical contributions to internal medicine."

Other than Dr. Milroy no Nebraska physician is mentioned in Garrison's History of Medicine.

Through the courtesy of Dr. LeRoy Crummer the library of the University of Nebraska College of Medicine contains a beautifully bound copy of Dr. Milroy's original article which appeared in the New York Medical Journal.

Very truly yours,
IRVING S. CUTTER, M. D.,
The University of Nebraska College of Medicine,
Omaha, Nebraska.

CONSERVATIVE OBSTETRICS.

A recent article read before the Clinical Congress of the American College of Surgeons, and published in the Journal of Surgery, Gynecology and Obstetrics of May, 1922, on the subject of "The Present Status of Operative Obstetrics Referring to the Abuse of Caesarean Section," by Doctor John Osborn Polak, Brooklyn, is the most conclusive argument in favor of conservative obstetrics, as opposed to modern radicalism in obstetrics, that it has been my pleasure to read. Every person interested in rational obstetrics ought to read the entire article, and at most I can give only a brief resume in the form of an abstract.

By way of introducing he says:

"The operative furor has surely invaded obstetrics, when even the physiological processes of normal labor are disturbed, and a normal sized child, in normal position, passing by a normal mechanism through an ample pelvis, with dilatable soft parts, is interfered with; the head disengaged, a version done and delivery accomplished by breech extraction on the plea that the woman is saved an hour or two of second stage pains. Other enthusiasts, either for their own convenience or to save the woman an hour or so of suffering, are routinely applying forceps when the head has reached the ischial spines, and the cervix is fully dilated; while others have so widened the indications for caesarean section that this operation is being employed daily on patients who present no real obstetric indication for it, simply because it is the most convenient way to get the baby out.

"It is the purpose of this brief paper first to review the present status of operative obstetrics, and to show that there is a difference between surgical obstetrics and obstetric surgery done for justifiable indications; second, that routine operative intervention, even in the hands of the expert, is not free from danger to both mother and child; and finally that while caesarean section is the easiest and quickest method of delivery, there is a higher morbidity and a higher mortality following abdominal hysterotomy, than follows abdominal section generally in properly selected cases."

Further on, in referring to caesarean section, he says:

"In the relatively contracted pelvis, caesarean is considered only with a view of saving the life of the child, for in dystocia from this cause embryotomy may safely deliver from below. This leads us to the one question that should always be considered: Is it proper to add that increased risk to the woman in order to save the child?

"My own feeling is that the healthy unborn child has equal rights with the mother, provided she is not potentially infected, yet we cannot blind ourselves to the fact that the woman is assuming an increased risk when she agrees to abdominal delivery."

Then, after giving detailed statistics of a thousand cases in his own obstetric clinic, and also detailed statistics of other large clinics, he summarizes as follows:

"A careful perusal of the foregoing statements and of the appended tables must leave the impression in the mind of the reader—That surgical intervention is being too freely employed to terminate labor, and furthermore that the results for mother and child from such interference (oftentimes unindicated) with the physiological processes of labor do not justify their employment.

"That the adoption of the principle and practice of aseptic intelligent expectancy in labor, when the factors of labor are known to be normal or approximate the normal, is still the safest method of delivery not only for the mother but for the foetus.

"That there is a high morbidity even in the clean caesarean section, very much higher in fact than is common in operations for pelvic tumors, such as fibromyomata and ovarian cysts. This is due to the presence of infective bacteria in the cavity of the puerperal uterus, which migrate from the vagina to the interior of the uterus, through the open cervix.

"That even in expert hands there is a definite maternal risk from caesarean section, greater than is generally known. Our mortality studies show that this ranges from 2.9 per cent to 14 per cent, depending on the time in labor at which operation is done, after rupture of the membranes and on the amount of vaginal invasion present.

"And finally, in view of these facts, we feel that every pregnant woman should have greater prenatal study and care than is commonly given her, so that complicating conditions may be recognized, prevented, or corrected before labor, and where this is not possible, the knowledge gained from this study will permit the obstetrician to conduct the labor in such an intelligent and aseptic manner as to minimize the dangers from abdominal delivery."

—A. B. Somers.

EDITORIAL PARAGRAPHS.

Under the auspices of the Lincoln public schools and the University Extension Division, an Institute of Malnutrition was conducted in June under the personal direction of Dr. Wm. R. Emerson, Prof. Pediatrics, Tuft's Medical School, Boston.

In a personal communication from Dr. Floyd Clark, Omaha, now attending clinics in the British Islands, he says: "One soon learns to respect the clinical judgment of the English M. D.'s. They are good clinicians but not laboratory men." Some pabulum for the thinker in that.

That osteopath out in the western part of the state must have felt like an oleopath after the indignity of a coat of crude oil ruthlessly applied. Such capers are a sad comment on our civilization.

Our annual meeting was somewhat saddened by the absence of our president, whom we knew was unable to be with us because of the serious illness of Mrs. Davis. Since that time, on May 25th, after an illness of about a year, Mrs. Davis succumbed to the disease with which she was stricken. The heartfelt sympathy of the medical profession of the State of Nebraska goes out to our president and to his son, Dr. Herbert Davis, in this hour of their affliction.

YOUR COUNTY MEDICAL SOCIETY.

Dear Doctor:—

Your County Medical Society: What is it and what does it stand for? What have you done to improve it and make it stand for the higher principles of the profession; or what have you failed to do to make it a power in your community?

In your student days when you attended a medical society you were thrilled with the thought that one day you would be a member of such an organization; that you would take part in the discussions and wondered whether at some time you would be worthy to present a thesis before such a body of men, who you then regarded as being in a heaven far above you and which could only be attained by hard work, constant application to the principles which you were then imbibing as a student.

It is the front door through which you must enter to attain membership in the state and national associations. It is the first step that you must take which puts the stamp of approval upon you by your peers. If you are outside the fold it classifies you as an outcast and not worthy of their association. It brands you in what is ordinarily known in the labor world as "scab."

In every walk of life you see organizations of men banded together for mutual benefit, whether it be for financial, economic, political, religious or other motives. A medical organization has as its prime motives the welfare of humanity and the cooperation of men in the same walk of life.

Why then the lack of interest in medical societies? At our last state meeting only six men out of the five counties attended the state medical society. At the Sioux Valley medical meeting only two were present. The best turnout we have had this year, at our regular meeting only half of the licensed practitioners were present. We are going to hazard a few guesses why so many fail to live up to their opportunities:

1. There is an embarrasment felt at being amongst men that are in the habit of attending societies. A language is spoken that is foreign. To conceal your own shortcomings it is easier to remain away and hide ignorance among those who have not had your opportunities for study and which you let depreciate from day to day. You have leveled yourself to the salesman of Bunkum and Dopem's pharmaceutical house. He promises you "results" on the yellow pill or the new combination of some old drug and you swallow bait, hook, sinker and all and lay in a few gallons.

2. Professional jealousy. That old bugbear that the man that stays at home may get one of your cases when your back is turned. If your hold on your patients is so precarious the probabilities are that you will lose them anyhow for the general public is so well educated along lines of progress that it knows that no man is so well informed that he does not need the association of his fellows for new ideas.

3. Several times we have met the ridiculous and absurd excuse that the dues for county and state are too high. If such were really the case undoubtedly provision will be made that those men who are in such desperate financial straits credit will be extended to them in order that they may recuperate and secure the benefits of attendance at the meetings.

In failing to add your mite to the organized body you help to encourage the quack and the cult. You are not a cipher. Either you are on the positive side or by doing nothing you are on the negative. You make the burden that much harder for the men that are working for your interests by withholding your active support. Be sure the gentry of the cultist fraternity is not lacking in organization and they get results. Just look over the Medical Practice act today. They are comparatively small in number as to regular practitioners, but they can flay them alive and look for more when the legislature meets. Even now one of the "paths" is actively pushing several men to get them in positions of authority in order that the state shall support their school. And you, doctor, sit idly by. Then when it is all over, but the shouting, you will rub your eyes, turn a few handsprings because you are not given a square deal and sink back into the comatose state into which you have sunken.

Now, doctor, if this has made you so scrapping mad that you want to lick somebody be out at the next meeting when the secretary notifies you. "And damned be he who first cries enough." If your ire has not been aroused and you feel that you have no obligations. "Peace be to your ashes:" There is no hope for the dead. Sleep on.

JOHN BUIS, Chairman,
Cedar, Dixon, Dakota, Thurston and Wayne County Medical Society.

CREIGHTON MEDICAL COLLEGE GRADUATES, AND HOSPITAL ASSIGNMENTS.

1922.

Anna Viola Barrett, St. Anthony's Hospital, Oklahoma City.
Peter Percy Bell, Mercy Hospital, Council Bluffs.
Raymond James Brennan, St. Margaret's Hospital, Kansas City.
John S. Broz, St. Joseph's Hospital, Omaha.
Elias G. Camel, Alemeda County Hospital, Oakland, Calif.
Philip T. Campbell, Holy Cross Hospital, Salt Lake City.
John G. Chaloupka, St. Margaret's Hospital, Kansas City.
Jay M. Cook, St. Joseph's Hospital, Omaha.
Harry A. Collins, St. Joseph's Hospital, Omaha.
Richard K. Collins, St. Margaret's Hospital, Kansas City.
Paul V. Duffy, St. Joseph's Hospital, Omaha.
John F. Gardiner, St. Joseph's Hospital, Omaha.
Joe E. Homan, Wichita Hospital, Wichita, Kansas.
Bernard V. Kenny, St. Joseph's Hospital, Omaha.
Felix O. Kolda, Mercy Hospital, Council Bluffs.
Paul E. Kubitschek, Osawatomie State Hospital, Osawatomie, Kansas.
Edward L. McCartan, St. Francis Hospital, Denver.
William P. Nemzek, Kings County Hospital, Brooklyn.
Hugh J. O'Donnell, Lord Lister Hospital, Omaha.
Kenneth L. Roper, Holy Cross Hospital, Salt Lake City.
William H. Schmitz, St. Joseph's Hospital, Omaha.

GRADUATES AND HOSPITAL ASSIGNMENTS, NEBRASKA UNIVERSITY COLLEGE OF MEDICINE, 1922.

Lionel Botleman Brown, Stratton, Neb.
Jerald Joy Bruce, University Hosp., Omaha.
William Andrew Bunten, University Hosp., Omaha.
Horace Emerson Campbell, Lakeside Hosp., Cleveland, O.
Robert Bruce Eldrege, Fairacres, Omaha.
James Gwynne Fowler, Bellevue, Neb.
Curtis Martin Galt, Alexandria, Neb.
Alex Frederick J. Hansen, 3004 So. 12th, Tacoma, Wash.
Clyde Clarence Hardy, University Hosp., Omaha.
Otto Maxwell Husted, University Hosp., Omaha.
Charles Howard Laugharn, Gering, Neb.
Roy Cecil Noble, D. & R. G. R. R. Hosp., Salida, Col.
Homer Royal Palmateer, University Hosp., Omaha.
Emmet Albert Pearson, Cooper Hosp., Camden, N. J.
Cornelio Blancaflory Tupas, 4236 Harney, Omaha.
William Taylor Webber, University Hosp., Omaha.

THE SOCIETIES.

Under the auspices of the **Madison County Medicial Society**, Norfolk, June 15. Dr. Palmer Findley, Omaha, gave a talk on the "Lost Art of Obstetrics," and in connection therewith presented a moving picture on Obstetrics and Gynecology made at the Wertheim Clinic, Vienna. Upward of fifty doctors from all over north Nebraska attended the meeting.

The **Johnson County Medical Society** met at Tecumseh, May 20. Dr. H. R. Brown, Beatrice, gave a paper on, "Rectal Surgery" and Dr. J. C. Tucker, Beatrice, read a paper on "The Nose."

The meeting of the **Box Butte County Medical Society** was held June 1 at St. Joseph's Hospital, Alliance. The scientific program consisted of a paper by Dr. Pierce of Chadron on 'Industrial Medicine and Surgery" in which the plan of the International Harvester Co. was described Plans for the **Twelfth Councilors District Meeting**, June 12, were completed. The following program is to be presented:

President's Address, Minor Morris, Alliance; Response, A. J. Stewart, Mitchell; Goitre, J. P. Weyrens, Alliance; Petrositis, R. P. Stoops, Scottsbluff; Radium, R. L. Ivins, Crawford; Local Anaesthesia, M. J. Baskin, Alliance; Evolution of Life, Mr. H. F. Cook, Agate.

The **Fourth Councilor District and Elkhorn Valley Medical Societies** are to have a joint meeting at Norfolk, Tuesday, Oct. 3.

HOSPITAL NOTES.

Kearney General Hospital has been opened by Dr. O. D. Johnson, at Kearney. The large private home of the late Dr. Blanchard was remodeled for hospital purposes.

The Catholic Home for the Aged at West Point is being enlarged by sixty rooms and modern hospital facilities on a modest scale for medical and surgical cases is to be an added feature.

By the will of the late W. M. Lanning, Hastings, founder of Mary Lanning Memorial Hospital, a fund is left for a hotel for young women, presumably a nurses' home. The will also provided for a visiting nurse for the city of Hastings.

The Omaha Mission Hospital association has been organized to develop and operate a fifty bed hospital for negro patients at 2633 Lake street, Omaha.

Transfer of the William Jennings Bryan home, Lincoln, to the Methodist hospital board has been completed and the place will be at once remodeled for hospital purposes.

The Douglas County hospital training school for nurses desires correspondence with young women desiring to enter the nursing profession.

Reports received at the office of the Journal indicate that the hospitals of the state graduated nurses this spring as follows:

Omaha: Methodist, 19; Swedish Mission, 7; Paxton Memorial (Ford), 15; Wise Memorial, 8; Nicholas Senn, 8; St. Catharine's, 8; Presbyterian, 5; University, 13; St. Joseph's, 18; Clarkson, 10; Mary Lanning, Hastings, 3; Lincoln Sanitarium, 8; Orthopedic, 3; Campbell Hospital, Norfolk, 1.

Jennie Edmundson Hospital, Council Bluffs, graduated 12.

The federal hospital for disabled ex-service men for the Ninth District which includes Nebraska, has been located at Knoxville, Iowa. The plant of the Iowa Inebriate Asylum at Knoxville, is to be the nucleus.

The Lutheran General Hospital of Sioux City, has been reorganized and a new staff appointed consisting of Drs. Townsend, Nervig and Henkin, in Surgery, Dr. Bellaire, Radiology, Dr. Brandt and Dr. Franchere, Eye, Ear, Nose and Throat, Dr. Vangsness and Dr. Runyon, Internal medicine, Dr. Harold Brown, Pediatrics, Dr. Latchem, Urology, Dr. Victor Brown, Skin and Venereal, Dr. O'Donaghue, Orthopedics. The hospital has just completed a new $120,000.00 addition and is being standardized.

BUSINESS ANNOUNCEMENTS.

Wanted—A few book agents to sell the Crowning Edition of the Celebrated Book on the Physician. Excellent business chance. Address the author, D. W. Cathell, M. D., Emerson Hotel, Baltimore, Md.

Am organizing a Postgraduate Hospital and Clinic in Kansas City, Mo., the cost of same will approximate a half million dollars I want an internist, obstetrician, urologist, neurologist and dermatologist with $10,000 each, who can qualify as clinical instructors The institution will be of the A-grade type, and operated in keeping with the rules of the American College of Surgeons. Write Dr. W. A. Harroun, 516 Chambers Bldg., Kansas City, Mo.

For Sale or Exchange—Twelve bed, two-story, brick hospital. Good office and living rooms, in good town northeast Nebraska. Fine farming country. Collections excellent. No competition. Address Nebraska State Medical Journal, Omaha.

NOTES ABOUT THE DOCTOR.

Dr. H. B. Cummins, Seward, is a candidate for congress from that district.

Dr. C. P. Fall, Beatrice, was slightly hurt in an automobile accident recently.

Dr. J. A. Henske and family are spending a month's vacation at Lake Okoboji.

Dr. Thomas Houlton, Omaha, is taking a course at the Boston Psychopathic hospital.

Dr. F. D. Ryder, Grand Island, took a vacation to points of interest in the east in June.

Dr. R. E. Hall, formerly of Fullerton, has become associated with Dr. A. L. Barr, Lyons.

Dr. H. J. Sloss, for many years a practitioner at Blue Springs, has located at Manchester, Kansas.

Dr. George Neuhaus, formerly of Denver, has decome associated with Dr. F. E. Coulter of Omaha.

Dr. S. R. Towne, Omaha, attended the fiftieth anniversary of his graduation at Dartmouth college, in June.

Dr. A. B. Fellers, Palisade, is president of the local Community Club and has the reputation of being a real booster.

Dr. P. R. Howard, formerly of North Bend and more recently, of Norfolk, has located at Kewanee, Ill., in an OALR practice.

Dr. C. E. Mullinax, of Hastings, is taking a year's postgraduate work in dermatology and syphilology at Washington University, St. Louis.

Dr. F. E. Braucht, Fremont, was elected department commander of the veterans of foreign wars at the encampment held at Fairmont in June.

Dr. F. A. Long, Madison, attended a reunion of his class on the occasion of the fortieth anniversary of graduation, Iowa University College of Medicine, Iowa City, June 5.

Dr. C. P. Fordyce of Falls City, has been appointed Councilor of the Third District by President B. B. Davis, in place of Dr. R. W. Fouts who has removed to Omaha.

Dr. Donald Macrae, jr., Council Bluffs, Iowa, late colonel medical corps, was decorated with the distinguished service medal with full military honors at Fort Crook, June 7, "for exceptionally meritorious and distinguished services, in a position of great responsibility as commanding officer of Mobile hospital No. 1, at Coulommiers and Chateau Thierry from June to August, 1918."

HYMENEAL.

Dr. F. L. Krampert, late house physician Wise Memorial hospital, Omaha, and Miss Grace Drinnen, Columbus, were married in Omaha May 30. They will live at Hanna, Wyo.

Dr. C. E. Rice, Odell, and Miss Irene Dredla, Crete, were married May 6.

NECROLOGICAL.

Dr. James C. Bishop, Omaha, Illinois College of Pharmacy 1891, Creighton University College of Medicine, 1899, died as an indirect result of an accident, May 14, aged 54.

Dr. A. H. Felch, Beatrice, Hahnemann Medical College, Phila., 1876, a practicing physician in Beatrice since 1887, died of paralysis June 3, aged about 73. He was president of the Gage county medical society for 1922.

Dr. W. H. Palmer, Blair, Rush Medical College, 1870, for many years a practitioner at Blair, died June 1, aged about 83. He was the father-in-law of Dr. R. J. Murdock.

Dr. George W. Meredith, Lincoln, Indiana Medical College, 1873, for thirty-five years a practitioner at Ashland, Neb., member for two terms in the lower, and two terms in the upper house of the state legislature, died in Omaha, after an illness of six weeks, aged about 71. Dr. E. L Meredith, Ogallala, is a son.

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CONSULTANTS I HAVE KNOWN.*

Morris Nielsen, M. D., Blair, Nebraska.

Inasmuch as it is impossible for any one mind completely to understand the entire human body in its many varieties of disease, as well as in its normal state, it has led a number of men who having recognized this to be true to study certain parts and diseases of the body as a specialty. Such men who devote all their time to the study and treatment of a limited part of the body, will consequently be more intimately familiar with conditions affecting their particular fields of endeavor, than those who try to encompass the body as whole. It follows that there are instances when we need the help of someone who has limited his study to a particular field, in order to diagnose intelligently or treat some of the patients with whom we come in contact. Such an individual is a specialist, in that he specializes in certain work to the exclusion of other things. When called upon to give an opinion he becomes a consultant, though a consultant need not always be a specialist.

Of primary importance is the interest and welfare of the patient, and as such he is entitled to the very best. Finding ourselves unable to clear up a certain point in diagnosis, or being unable by lack of training or apparatus to carry out adequate treatment, such patients should be referred to one who is properly qualified and equipped.

The physician who refers a patient for either of the foregoing reasons does not become relieved of responsibility by such disposition, as it is the rule that the choice of consultant is left to him, for the reason that the patient does not usually know to whom to go. It is therefore proper that we consider carefully where our patient goes. His confidence is primarily in his physician and it is upon him that the criticism falls if all does not go well. One frequently calls upon his fellow physician in his immediate vicinity for assistance and judgment, and out of such consultations a great many warm and lasting friendships arise. On the other hand we may encounter deception and antagonism where we had expected encouragement and support. There are perhaps 57 varieties, more or less, who claim to be consultants, and I have met them all.

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*Read before the Nebraska State Medical Assn., Omaha, April 27, 1922.

There are types who take pride in informing us of their frequent trips to Europe, and boast of their intimate association with all of the teachers who are really worth while. Thus they were enabled to get so much more out of the work than the person who must content himself with the ordinary avenues of instruction, namely the scheduled lectures, laboratories and clinics. Their greatness is apparent in their frequently expressed sympathy for the latter.

Their luggage bulges with instruments and apparatus manufactured and used on the other side much of which cannot be repaired in this country should it get out of order. This they fail to take into consideration until that time comes, and then console themselves with the idea that at any rate they have the equipment and seem satisfied. They are all first assistants to Professor so and so. Never have I met a second or a third assistant. Another crop of consultants came after the Great War. They developed while in the service and are now back, fully competent to carry on all work in their chosen fields. The Kaiser was certainly responsible for converting a lot of real good general practitioners into half baked specialists.

The methods employed by some are really amusing, and let it be understood right here that the more genuine ability the consultant possesses, the less he crowds himself forward, knowing that it is not necessary, and he feels it beneath him to be obtrusive. Consider if you please the fellow who forms or becomes a part of a coterie who must depend upon each other for recognition or opportunity. Such individuals will never get beyond their own select circle and will consult only with the same few, thus losing the opportunity for broadening themselves acquired only by coming in contact with a larger number of men in various communities and of different opinions. Too often some consultants are apt to attach little if any importance to the opinion of a physician practicing in a small community, and I have known of a few instances when had more consideration been manifested, and had the judgment of the physician who referred the case been taken at its value, a good deal of embarrassment would have been avoided by the too cocksure specialist or consultant. It might be well to remember that what the lowly family doctor may lack in paraphernalia, he makes up for by being alert, a keen observer and having an abundance of good common sense.

Can you consider the chap who fawns upon the country doctor when he comes to the city? He is overwhelmed with invitations to lunches; to theatres, to dances and to golf, things that in themselves are well enough, but consider that the doctor thus invited is perhaps only a casual acquaintance and is at a loss to understand the motives prompting these advances. The consultant does himself no good, and more often than not invites contempt and makes the doctor plainly ill at ease to say the least. I will say right here, that the man whose practice consists largely of referred work, must have something more than an affable personality or a matter of geographical location to offer his patients. Let him brag about his high powered automobile, but the fact remains that horse power can never be converted into horse sense.

Such tactics are as barren of results as the proverbial glass eye at the key hole.

My conception of a consultant is one who has graduated from a good medical school, has held a good hospital interneship. and later has been engaged in general practice. A sufficient time devoted to post-graduate study, followed by an adequate assistantship to some recognized man in the specialty of his choice. Such a man with a just regard for the welfare of his patient, consideration and respect for the opinion of the physician who refers the patient, will be truly capable of doing a lot of real good. A useful life is not necessarily measured by the figures in the bank book, but by what the people with whom we come in contact say of us, and what we have actually rendered in service.

I have known consultants who care not where their work comes from. Some openly curry to osteopaths, chiropractors and horse doctors. While in our profession, as in other walks of life, one likes to see a person be aggressive, there should be a line drawn somewhere. I once heard an able and distinguished physician say, "that if he knew the men that a doctor called in consultation, he could readily classify him as to ability and character."

The status of medicine was never more precarious than it is today. The thinking public is watching us with an interest that is truly astounding. With the many cults and fads that are so blatantly clamoring for recognition is it any wonder that their eyes are upon us? Upon our conduct and the service that we render to humanity, as well as our consideration for one another, rests their verdict. We may determine what that verdict shall be. The men who are the recognized leaders in our profession have grave responsibilities to shoulder, which the lowly family doctor is most willing to share.

I have known consultants that in their greed were blind to all decency and courtesy. If the other fellow gets a patient who they thought should have come to them, they show an enmity and hatred toward that man that is disgusting to say the least. They cannot get all of the work, and instead of showing good sportsmanship and being good losers, they sulk like a lot of disgruntled politicians whose candidate has been defeated. We claim to be civilized, yet there are those among us who would be stoned to death were we to attempt to live among a tribe of savages. I have often wondered why some of our older and well established men show such bitterness toward a younger man who is trying to get a foothold in the same work.

If the young man is competent and well qualified, he should be encouraged rather than repulsed. How wonderful it would be to see the man who has reached the pinnacle of success reach down and welcome the younger man who aspires to become as able, and to hear the young man sing his praises for the encouragement he has received, and the kind words spoken to spur him on to greater effort. I have known men who had every essential qualification, to be rudely rebuffed and refused recognition by their elders, until they were forced back into general practice, who would have been a credit to any man that would have encouraged them. Permit me to say that the community where he finally located and made good was the gainer, and the city that let him get away was the loser.

I have known consultants who were so conscientious that they would enquire as to the circumstances of patients I had referred, in order to make the fee fit their ability to pay. Such men realize that while sickness is a misfortune it may be ameliorated by a good many acts of kindness and consideration to lighten the load.

Men are mortal; all sickness is not preventable; accidents will happen and distressing injuries result. Decay and death approach with advancing years. Strength and weakness are relative terms, and those possessed of the former must help bear the burdens of those afflicted with the latter. We frequently meet in sick rooms experiences which greatly increase both our interest and our confidence in man. We find the young and vigorous denying themselves many pleasures in order to brighten the pathways of the old and infirm, the fortunate lending a helping hand to the unfortunate, the wise leading the unwise. When we consider that sickness is as much a part of the average life as many other things, it is not out of order to teach people that they should be prepared to care for this item financially, with the same degree of forethought that they give to shelter, clothing or food. The consultant has a right to demand fair fees from those who are able pay, but should also give gratuitous service to the poor. I have known consultants who are beloved by their patients, held in high esteem by their confreres, and respected by all who know them. They are keen observers, and read character for the most part correctly and are not easily imposed upon. Their interests are largely humane and scientific. They have deep sympathy for those whose ignorance leads them to sin against their own bodies, but are devoid of weak sentimentality and do not hesitate to admonish and even denounce the misdeeds of their patients, whatever their social position.

I feel honored indeed to claim the friendship of so many of this class of consultants. It is a fitting tribute to our Nebraska consultants to be able to say that they stand second to none in ability, integrity and sincerity of purpose. The men who in the early nineties were at the head of our profession are there yet. Some have gone to their reward, and of those remaining none have been crowded out or shoved aside. They have kept pace with the advance of modern medicine, and have been augmented in numbers by younger men. To the determination and energy, together with the scholarly attainments of these older men, it has become possible for Omaha to stand out boldly and proudly in her possession of the two splendid medical schools within her confines today. When I see how I pale into insignificance when compared to these splendid men, and yet they tolerate me among them, I can truly say that I am grateful indeed, to the consultants I have known.

DISCUSSION.

R. W. Fouts, Falls City: Dr. Nielsen, through his admirable paper, has touched upon something I believe is the keynote to the general good fellowship and good feeling that should exist among the members of the medical profession. I know of nothing that has more to do with forming the ideas and opinions of our fellow practitioners than the way we respond when we are called as consultants, or when we call a consultant.

Too often we find that a consultant when called to a case, by actions, if not by words, makes you feel he is "It," and that he knows and understands and sees things he does not say anything about; but can very readily see something has gone wrong. When he has gone, he has really defeated the purpose for which he was called. He was called to share our responsibility in the case as much as to give his opinion.

I think in my own experience—not that I am a better diagnostician — I have more cases of consultants called for the family's benefit than for that of the patient. I make it a practice if I feel the members of the family are the least bit concerned, or unduly worried as to the outcome of a given case, to ask for consultation. I suggest more consultants than I have suggested to me.

If we get a consultant to come in and do as a man should do, he will not only relieve you of a major portion of the responsibility, but he will go away leaving you 100 per cent solid with that family. On the other hand, if he asks a number of questions—"Have you done this and that?"—things perhaps with no bearing on the case, and you of course say, "No," perhaps in the presence of the family of the patient, it lessens their faith in your ability to handle the case.

Some fellows have a habit of taking all the instruments and attachments they have brought with them from Europe, or elsewhere, and displaying them at the bedside. Naturally it causes the patient to wonder what is wrong that his family physician does not have all this equipment and use it.

We still have too many of that class of men with us. This causes more ill feeling among members of the profession than any one thing I know of.

I enjoyed the paper very much. I shall think it over. It is a thing that will bear thinking over.

If we are called as consultants, let us remember the other fellow has some rights, and fifty per cent or more of our purpose in being on the case is to make the doctor strong with his patient; and above everything else, our real duty is to put the doctor in strong, because we can either make or break him in most instances.

A. D. Dunn, M. D., Omaha: I happen to be one of these unfortunate consultants. I do not care to say much about that phase of the thing, but I do wish to emphasize a thought that came to me and was with me a great part of the time Dr. Nielsen was talking. It was a saying of Dr. Pritchett, ex-president of the Massachusetts Institute of Technology, now the head of the Carnegie Foundation, which appeared in an article on "Medical Education," "The well educated, broadly experienced, altruistic and sympathetic physician is probably the highest product of our civilization." I think we have listened to one of those products. This was not so much a talk on consultants as it was a broad survey of medical ethics, medical service and the things for which the medical profession should stand.

If there is one thing that is injuring medical practice and the reputation of the profession today, it is commercialism. It is a corroding influence doing its work silently day and night, and to it are attributable the ills arising from consultant practice. If the consultant keeps before himself the ideal of service and what is best for the patient, he will not undermine the family doctor, because if he does he is acting directly to the detriment of the patient. Even if the family doctor is not quite "up to snuff," if the confidence of the patient in that doctor is destroyed, the probability is that the patient will be forced to take refuge in some of the numerous aberrant forms of medical practice or cults which are so little fitted to care for real sickness.

From the standpoint of the consultant I want to say just a word in regard to out of town trips, because I think possibly the country doctor may not appreciate the viewpoint of one who is called to make a trip into a distant part of the country. There would seem to be but three reasons for making an out of town trip: (1) What service can the consultant be to the patient? (2) What service can the consultant be to the doctor? (3) The financial reward, which is of secondary importance. I think the man in the country should realize that when he calls a consultant the sum total of service which the consultant can render in a given period is materially lessened by going out of town. It does not seem to be fully appreciated that the consultant's expenses go on just the same when he is out of town, and that the income from his personal effort stops. The busier the consultant, the greater his daily expense account and the higher proportionately his charge for out of town visits must be. It has always seemed to me, where people insist on consultation on emotional grounds, where nothing is to be gained from the consultation except the knowledge that everything has been done, the consultant should not be asked to reduce fees.

I was very much interested to hear Dr. Fouts' remarks anent the traveling kit. I carried one for about five years, with a small laboratory, microscope and everything else I needed to make a thorough examination at the bedside. I abandoned it for the reasons Dr. Fouts mentioned. I learned that it was bad psychology from the family physician's standpoint. Now I simply carry the equipment absolutely necessary for the simple needs of a routine examination, and for obtaining blood serum, aspirating fluids, etc; in short, to obtain the necessary specimens for laboratory examinations, to be made and reported later to the physician in charge.

E. Willard Powell, M. D., Omaha: I am only sorry after hearing this paper that it was not read yesterday, because the attendance was much larger. I do not consider this a paper at all. I consider it a darned good sermon, and I hope some of these fellows will let it soak in. I am sorry it did not come from Omaha—from a consultant in Omaha. I am sorry he did not think of it, as much as I love this long-legged fellow from Blair. Nielsen has always had the happy faculty of making something real good. This is a very timely paper. If this meeting of the Nebraska Medical Association has been faulty in any respect, this paper should be a recompense.

I can remember my early days, and I know just exactly what Morris wanted to say to you, but he was too polite to say it. If there is anything in the world can make a fellow feel like thirty cents, it is to have one of these so-called "consultants" who is bubbling over with ultra-scientific technical knowledge, come into a small community where a man has worked himself to death and has done the best he could, and then suggest something as foreign from this case as can possibly be, and explain it so that he will be the "big gun."

It is the most humiliating thing, and does the least good to him, and is the greatest detriment to both doctor and patient, of anything I know.

I hope every fellow will read this paper, and that these sermons will be read every year for the next ten or fifteen years; and I hope that every one will, as I have said before, think it over; and when you go out, just be a little charitable to the other fellow.

E. S. Furay, M. D., Union: I very much enjoyed the Doctor's paper. I have been a country practitioner all my life—most of it on the frontier where consultation was hard to get. I remember many a time I have had a man ride across the mountains on horseback in consultation. I have had strong personal friends among these consultants.

As I whispered to the doctor a moment ago, I had a consultation with a young physician. We worked hard on a case and did not know how we could save it. I asked for a consultation, and a man came in and, as the doctor said, commenced to ask promiscuous questions. I honestly believe that man's questions, which had as much to do with the case as the Chicago waterworks, killed the patient. He asked questions which undermined our own work—the confidence of the family and patient. He asked them in the presence of the patient. The patient died.

Another time we had done everything with a typhoid patient we possibly could and did not see how we could save him. We called a consultation. I believe that consultant was the most cheerful liar I ever heard! He did not do anything but put confidence in my patient, and he got well in spite of me, I guess.

I have only been a country practitioner—not with the best of equipment—but I have met consultants who lorded it over me and did not know half as much medicine as I did. I have had them come to me and say, "My bill is fifty dollars. I would like the money," before they saw the patient. I was hurt in the community by that sort of thing. That doctor never considered the humanitarian side.

I have had them in this state in the last few years. I was born in this state, and have practiced all over the northwest. I never met more gentlemanly consultants than right in Nebraska. I have had Nebraska men go out of their way to help me. I remember one man who made a long trip for me. When I wrote him the man could not pay, he said, "Can I do good?" He is alive and in Omaha today. He made a long trip and did not charge a cent because he felt he could do good as a consultant. He is reaping the benefit and is one of the leading men of Omaha today.

H. J. Lehnhoff, M. D., Lincoln: I think this paper should not go by without the fullest discussion. I want to emphasize one point, and that is every consultant, or the doctor in charge, should go into that case with at least one thing in mind, and that is an absolute spirit of cooperation. Neither is there to lord it over the other. Each should realize the faculties and advantages of the other; and that while there may be some ideas or some things of which the consultant is more cognizant than the man in charge, yet he must realize the man in charge knows some things and can do some things better than the consultant. I will defy any man who poses as a specialist in Lincoln or Omaha to go into the country and do some of the things the men in the country are doing. A consultant must recognize that.

The consultant must have a spirit of cooperation, as I have said. In order to get into that spirit of cooperation, he must show the instincts of manhood and character.

In the old story, "Beside the Bonnie Brier Bush," when the man was called into the country by the old Scotch doctor and the stream was swollen and they felt there was danger, the consultant said it was not quite right to take a chance of going across that stream, because he might lose his life, and he owed it to the community to live and serve them. But the old Scotch doctor replied, "Your first duty is to be a man." And that is right.

Nobody I know could better present this paper from the standpoint of a man who dared to stand for manhood and character than Dr. Nielsen.

Olga Stastny, M. D., Omaha: I do not suppose I can say anything different than has been said, but when Dr. Nielsen was speaking, I was thinking of the time I first planned to study medicine and the ideals I had. I pictured myself as a student and thought, "You will never get anywhere."

I may drive a Ford a great many years yet, but it is papers like this make me feel it has been worth while to have this sort of idealism.

I have not met all of the "57 varieties," but some, and to them I owe the fact I have been able to keep ideals in medicine, and will have confidence to start over again; because there have been times when I have needed moral support more than anything else.

There have been times I knew I was doing as much as the man I called could do; but the family felt they should do everything so that they might not blame themselves or me. Other times I have been shaking with fear because I thought I might neglect something; and I have had to call consultants when my own children were sick.

I think I have been specially fortunate, because in my practice right here in Omaha, I am proud of the fact I have always been met more than half way; and that has been one big factor in making up my mind where to continue my future work.

C. A. Roeder, M. D., Omaha: I was most curious as to how this unusual subject would be handled as I happen to be guilty of having been one of Doctor Nielsen's consultants. I knew he intended reading this paper but had no idea the doctor had so many things stored away. It was interesting to see the various "consultants" slip quietly into the room, with an expression of expecting a few jolts. I must confess I came in with the same idea.

It seems strange to me to hear of the country practitioners lacking in equipment. Their training develops remarkable judgment which reminds me of a remark of one of our surgeons who stated, very aptly, that a good surgeon does not operate with his hands; he operates with his head. It is so with the general practitioner in the country—he is constantly developing his head—the secret of successful practice.

As Doctor Morrow, of Fremont, recently told me, "a specialist is a man who is away from home." These men are called into the country to consult with the general practitioner and if they have not a head equal to the latter, all their equipment is worthless. We must keep in mind that there sometimes is a difference between a "doctor" and a "specialist."

Lucien Stark, M. D., Hartington: I feel that it would be absolutely unfair for Dr. Nielsen's paper to pass by without saying a word. The term "Heavenly Twins" as applied to Morris and myself has been known to most of you for a long time. The friendship of Morris Nielsen is really a wonderful thing, and while I have consulted with him on many subjects, some of them non-medical, some of them unfortunate as to outcome with reference to both myself and others present, really he has given us a great deal to think about.

The one great mistake the average consultant makes when he goes out to see a case with a man in the country, is that he gives the country physician little credit for knowing very much. I know one of Dr. Nielsen's "57 varieties" of consultant, who would probably be classed under the "Heinz" classification as a "Sour Pickle." No country practitioner has ever done anything which met with his full and complete approval. I know of an instance where he was called to see a child with a simple intestinal infection. I cannot tell you all the things he did. One was a lumbar puncture. Other things were various cell counts, and so forth ad libitum. The doctor in charge finally insisted on giving the child a dose of this much abused remedy, castor oil, and it got well.

The great fault with many consultants is that from not knowing anything about a patient, the personal element must be left out. Rather than benefit by the regular attendant's knowledge of the personalities of that particular individual or his family, he seems to want to take entire charge of the case and produce a machine made diagnosis in the shortest possible time. You are going to find some of your large diagnostic institutions making failures in the handling of sick people because they do not take into consideration, the personal element. The case becomes "Number 4329" and the individual loses his identity. This is not said in a spirit of adverse criticism, but is a fact that we know actually happens.

For the consultant, this paper has been a benefit. For the man who calls the consultant, it has been a benefit, because when he does call the consultant his sense of personal pride will naturally compel him to have everything done which should be done in order to facilitate that patient's recovery, rather than to add an economic burden to the family, to lose his own standing, or to build up the already glorious reputation of the consultant.

W. L. Ross, Jr., M. D., Omaha: We younger men are more apt to need the help of a consultant than most of the men who have talked upon this paper, so I think one of us should say something.

I have had occasion to call a number of our well known Omaha consultants. I want to take the occasion to make a general criticism in public which I cannot in private. A good many of us younger men will carefully work up a case, write out a painstaking history, and then, being unable to decide what is wrong, call a consultant, who will come in, cast one glance at our history, one glance at our laboratory findings, spend fifteen minutes asking the patient questions, and make his diagnosis, undoubtedly because of his vast clinical knowledge and the experience he has had in the past.

Even if he can do that, it would be nice if he would take the trouble to read the histories he took four years teaching us to write, histories which would answer his questions much more clearly than the patient can answer them, and if he would stop to look over the laboratory reports on work he would probably ask to have done had it not already been done. It would make us feel better, it would keep our patients from feeling that we had just been wasting their time and money, and it might help even a highly trained expert to arrive at a correct diagnosis.

Dr. Nielsen, closing: I want to thank the gentlemen very kindly for their discussion and for the interest they have shown in the paper; and want again to say that the primary element which prompts us to call a physician is, and should be the benefit of the patient. When we call a consultant, we feel he is a partner in the proposition and would give us the very best, in his judgment. We should have perfect confidence in that consultant to the degree that none of us will quake in our boots as to what his verdict or attitude will be, nor how it will react on the family of the patient.

I am truly grateful to the consultants I have known. You know the kind I am grateful to—chiefly the men who are real, honest-to-God doctors and real men. The man who has put in some time in general practice I feel has always been able to do the most from the standpoint of the consultant.

As long as things exist as they do, where it is necessary for us to depend upon each other, we cannot help but feel that we are entitled to consideration; and the people who give us consideration and results, have our respect and confidence, and also have the confidence of the public with which they come in contact.

LATERAL SINUS COMPLICATIONS OF PURULENT OTITIS MEDIA.*

Albert H. Andrews, M. D., Chicago, Ill.

Before going into the details of this subject, let me show you a clinical picture, typical of many if not most of the cases of lateral sinus complications of purulent otitis. The patient may be old or young. He may have an acute purulent otitis media or an acute exacerbation of a chronic condition. The patient has rather more constitutional disturbance than is usual in ordinary ear cases. The coated tongue, bad breath, fluctuating temperature, the headache, with sometimes mental hebetude in these cases has caused many a good general practitioner to suspect he was dealing with a case of typhoid fever. The first really typical symptom is a chill. This may be mild or severe, of long or short duration, and may occur at any time of the day or night. Following the chill the temperature usually rises to 103 or 105 degrees and profuse perspiration not infrequently occurs. Another chill usually follows in a few hours and this in turn is followed by a rise in temperature and perhaps by perspiration. If the second or a third chill happens to come about the same time of day as the first, it may lead one who has not been thinking along the line of infections through the lateral sinus to suspect that he is dealing with a case of malaria. These symptoms may continue a few days or a week or two. The subsequent picture will depend upon the character of the infection and the behavior of the thrombus in the sinus or jugular vein. If the clot softens gradually and the infectious material is carried through the lung into the general circulation the patient may have general septicaemia from which he may recover, or he may have pyemic abscesses. The question of his recovery now will depend upon the virulence of the infection, partly upon the number and size of the abscesses, but mostly upon the location of these localized inflammations. If the abscess forms in the liver, the brain or some other vital part, a fatal termination is to be expected. If the clot in the vein softens and floats away en masse as it usually does, it passes down the jugular, through the innominate vein and vena cava to the right auricle, thence to the right ventricle and out through one of the pulmonary arteries to the lung, where it lodges and sets up a septic pneumonia from which the patient has very little chance to recover. I am not disposed to criticize physicians; for the field of medicine is too great for any one man to know all that is to be known, and this is one phase of the subject which seems to have escaped the attention of a large number of excellent practitioners.

A preliminary study of the venous circulation in the brain may help us better to understand some of the phenomena observed in lateral sinus disease.

There are three veins lying in the dura which carry blood to the torcular. These are the superficial longitudinal sinus, the deep longitudinal together with the straight sinus and the occipital sinus. There are two vessels, the lateral sinuses which carry blood away from the torcular. These begin at the torcular and pass horizontally outward along the inner wall of the skull until they reach the upper border of the mastoid when they curve downward in somewhat the form of the letter S. and in this part are called the sigmoid sinuses. The dura is composed of two layers, the outer which is closely adherent to the inner wall of the skull and forms its periosteum. The inner layer is intimately connected with the outer except where it is reflected inward to form the falx cerebri, the falx cerebelli and the tentorum cerebelli. These partitions divide the brain into its hemispheres, and separate the cerebellum from the cerebrum. At the margin of each of these dividing structures is a venous blood channel called a sinus. If a cross section of any one of these sinuses should be made the general form of the lumen would be found to be triangular, the outer wall being formed by the external layer of the dura, while the two other walls of the sinus are formed by the inner layer of dura before they unite to form these different partitions .

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Pathology: When we remember how intimately associated the periosteum is with the bone, is it any wonder that when the bone to which periosteum is attached becomes diseased that the disease processes extend through the periosteum and involve the structures beyond.

There are two theories regarding the manner in which the lateral sinus becomes infected. One is that the infectious matter reaches the sinus through the small veins passing from the mastoid into the sinus. Probably this theory is correct in some cases, although it is difficult to see why the infection should pause as it passes from the small into the large vessel and cause a fibrinous mass to become adherent to the wall of an otherwise healthy vein and finally obstruct the passage of blood. The second, and to me the more plausible theory is that because of the bone becoming inflamed from infectious material in the mastoid cells the sinus wall itself becomes inflamed and an exudate is formed within the lumen of the sinus which gradually increases and probably attracts and coagulates fibrinous elements from the blood stream until the entire vessel is completely filled. It is claimed by some that a thrombus never forms in the sinus so long as the intima remains normal. The wall of the sinus adjacent to the mastoid is so thin that it is difficult to conceive of one part of the vein wall being diseased without the entire thickness of the wall partaking of the inflammatory process. Occasionally a thrombus is found which does not completely fill the sinus. Sometimes the sinus is obstructed for only a short distance. Again the sinus and jugular may be completely filled from the torcular to below the middle of the neck. The extent of the thrombus does not seem to bear much relation either to the constitutional disturbance or to the prognosis. Some writers have attempted to describe the different stages in the formation and in the disintegration of a thrombus. These theories are largely built upon hypotheses not well established, for it is difficult to tell at the time of operation just what changes preceded the conditions found or just what changes would have followed had the operation not been performed. At the time of operating varying conditions are found in diseased sinuses, probably depending upon the variety and the virulence of the infection and upon the stage in the life history of the thrombus that the examination was made. Sometimes the thrombus appears to be little more than firmly clotted blood in which very few microorganisms are found. Sometimes the thrombus is hard, resisting, giving a doughy feel to the sinus before it is opened. Sometimes free pus is found which has given to the sinus a yellowish appearance. In other cases bad smelling gas escapes from the sinus when it is opened. These cases are associated with chronic mastoid disease with a foul smelling discharge. It is to be inferred that the same germs which caused the odor of the ear discharge have worked through the sinus wall and set up the same odoriferous process within the sinus. The pathological conditions within the mastoid process which precede and lead up to sinus disease show great variations. Probably the most frequent of all conditions is cholesteatoma. This is essentially a chronic condition. The skin of the auditory canal has grown through the drum membrane, or in cases of completely destroyed drum membranes it has passed by the annulus tympanicus. It has encroached upon, crowded back, replaced the mucous membrane lining the middle ear, the attic, the antrum and finally the mastoid cells. As is usual in other parts of the body, the skin lining the antrum and mastoid cells exfoliates from time to time. The exfoliated layers of epidermis being unable to escape from the antrum and mastoid they accumulate, forming a gradually increasing mass called a cholesteatoma. The mass in time makes pressure on the surrounding bone causing gradual absorption and increasing the size of the cavity as the size of the mass increases. When the bone absorption process goes upward in the direction of the middle fossa a brain abscess is likely to result. When the absorption process goes backward until the bony wall of the lateral sinus is absorbed lateral sinus thrombosis not infrequently follows. In some cases of both acute and chronic discharge, symptoms of sinus disease have developed and in operating no gross pathology has been observed in the bone adjacent to the sinus, but upon investigation of the sinus itself a well defined thrombus has been found. In many cases of mastoid abscess the bony wall of the sinus sometimes for an inch has been found broken down, the membranous wall of the sinus being bathed in pus, but there has been no local or constitutional indication of sinus involvement and the patient recovers promptly without any complications. No one has yet offered a satisfactory explanation of these frequently observed clinical variations. The most frequently offered explanation is the ever varying relation between the variety and virulence of the infection and the resistance of the patient.

Diagnosis: In the ordinary case of sinus thrombus the symptoms are so constant and so characteristic that one who has any knowledge of the subject should have no trouble in making a diagnosis. The chill, the high temperature, the sweat, with recurrences at irregular intervals when associated with a purulent condition of the ear should leave little room for doubt regarding the conditions present. Sometimes the above symptoms are present without discharge or history of discharge from the ear. The absence of discharge from the ear does not preclude suppurative disease of the ear and the mastoid process. The mastoid transilluminator, the condition of the drum membrane, the condition of the hearing (diminished air conduction and increased force conduction) and the X ray will help settle the question of mastoid disease. In mastoid disease even without discharge there is nearly always tenderness over some part of the process and some thickening about the attachment of the sterno-mastoid muscle to the tip of the mastoid process. Tenderness in the depression just back of the tip of the mastoid process is nearly always present when the sinus is involved. This depression marks the point where the emissary vein enters the skull. Even more disconcerting than the above are those atypical cases which run a fairly even temperature with a slight chill two to five days apart. The symptoms of sinus disease are so far from typical that one hesitates to advise so formidable a procedure as a sinus operation, and still the symptoms indicate that something is not right. The tendency in these cases is to await developments, and fortunate are both patient and physician if there is not a sudden development of pneumonia or other pyaemic abscess to indicate that the waiting program was a sad mistake. I know of no condition in which an accurate diagnosis is more difficult than in some of these atypical cases, nor do I know of any condition in which the result of doing the right thing is more satisfactory or failing to do the right thing more disastrous. Among other lines of investigation examination of the blood is important. While a blood count may not be necessary for diagnosis in the typical case it should always show a high leucocyte count and becomes of special importance in the doubtful cases. The same may be said of the examination of the blood for bacteria. In all cases of sinus disease the blood is likely to show the presence of disease germs, but in the doubtful cases their presence is a strong indication of the presence of a thrombus. Since sinus thrombosis sometimes occurs simultaneously with other complications such as meningitis and brain abscess, or the presence of one intracranial complication may suggest the possibility of another, a study of the comparative symptomatology may not be out of place.

The most characteristic symptom of sinus disease is chills. They vary in frequency, in intensity, and in duration. After the first chill another may occur in a few hours or a few days. As a general rule the second occurs in from twelve to eighteen hours. In intensity they vary from slight transient rigors to severe violent chills lasting sometimes an hour. Chills are not infrequent in the beginning of both meningitis and brain abscess, but they are usually slight, of short duration, and are not likely to recur. While the chill alone is never pathognomonic of sinus disease, it is a danger signal which should arouse the attention of the physician to a close study of all the phenomena connected with the case, and when taken with other symptoms it is one of the strong indications. The temperature fluctuates in the typical case from the neighborhood of normal to about 104 degrees, although it may remain much lower or may reach 106 degrees. In meningitis the temperature does not fluctuate so much, is not likely to go much below 102 or above 104 degrees except in the final stages when it may reach 107 degrees or even higher.

In sinus disease the pulse goes up with temperature, but if the temperature goes down the pulse drops some but does not follow the temperature curve clear down. In one case fairly typical when the temperature went to 105° the pulse registered 130. When the temperature dropped to almost normal the pulse remained above 90. It has no characteristic peculiarities. In meningitis the pulse is rapid, thready, and later becomes weak, while in brain abscess the pulse becomes very slow, soft, and increases temporarily upon slight exertion.

Vomiting is not uncommon in sinus disease, but when it occurs the patient vomits because he is nauseated. In meningitis vomiting is the rule. It is of the projectile type and without nausea. Patients with brain abscess rarely vomit unless the abscess is located in the cerebellum, which is unusual.

The skin in sinus disease shows no characteristic changes unless the patient becomes profoundly septic when herpetic eruptions or petechiae may appear. In meningitis a red elevation or welt appears after the finger or some object is drawn across the surface of the body. This is the tache cerebrale of the French, and is sometimes improperly called dermatography or picture writing.

The blood examination in sinus disease shows leucocytosis with bacteria. In meningitis there is a high leucocyte count, usually without bacteria, but the spinal fluid is usually cloudy and contains microorganisms.

Treatment: If one should consider the subject of prophylaxis it would take him clear back to hygienic and general care of the child, lead him past the question of tonsils and adenoids, the care of the ears in acute exanthemeta, the acute purulent otitis medias and the question of operating upon intractable subacute cases to prevent their becoming chronic. It would also lead one to consider very carefully the question of operating upon intractable chronic cases to prevent later complications. Without going into the general subject of the treatment of chronic discharge from the ear, I would emphasize the importance of examining every chronic discharging ear for evidence of cholesteatoma. In making this examination one should carefully search for white flakey masses in the discharge. If any are found they should be spread out on a slide, stained deeply with hematoxylin and examined under a rather low power. If epidermal cells are present because of their undergoing a waxy degeneration they will not take the stain well and will appear as light areas in a dark field. If masses are not found some of the discharge should be taken from beyond the drum membrane, preferably from the attic, and examined in the same way. When a cholesteatoma is present some of the mass, or at least some of the epidermal cells, will nearly always show in the discharge. The presence of a cholesteatoma is always a sufficient indication for a tympano-mastoid operation. It may take considerable time but without an operation trouble is sure to result sooner or later and frequently the trouble is of such a character that an emergency operation will be required under conditions not very favorable for the patient's recovery.

When the symptoms are sufficiently clear for a definite diagnosis to be made no unnecessary time should be lost in operating. The calamity most to be feared is lung involvement but this rarely occurs under three days from the first chill. I would caution against being in too much of a hurry to operate, as I have seen several cases of postoperative chills and temperature where sinus involvement was suspected, but a reddened, indurated area spreading from the operative wound a few hours later changed the suspicion of sinus disease to a diagnosis of erysipelas, and no further operating was required. In operating for sinus disease the purpose is to prevent infection passing into the general circulation. Much discussion has been indulged in and difference of opinion has been expressed regarding ligation of the jugular vein in these cases. My own opinion is that in all cases of sinus thrombosis the jugular should be ligated and severed above the ligature. If the upper end persists in bleeding it should also be ligated. I am opposed to the method which some advocate of resecting the jugular up to the jugular bulb. In my opinion this increases the trauma and lessons the patient's chance for recovery. At least the trauma is increased out of all proportion to the good to be accomplished. If the symptoms are clear the jugular should be ligated before the mastoid is opened or the sinus is manipulated. If the indications are not clear and it is thought best to inspect and perhaps explore the sinus before deciding the question of ligating the jugular vein, it should be remembered that examination of the sinus may cause a part of the thrombus to become detached and thus the operation cause the very complication we are trying to prevent. The usual location for ligation of the jugular is about the middle of the neck. This is a good general rule, but if there is soreness and swelling along the line of the vein it is safer to ligate low down in the neck since in these cases the thrombus extends down the neck and it is important to get below it. An incision is made along the anterior border of the sterno-cleido-mastoid muscle and by blunt dissection it is carried down to expose the internal carotid artery, the pneumogastric nerve and the jugular. The pulsating artery makes a good land mark and the vein lies a little more superficial and sometimes a little backward from the carotid with the nerve between and a little deeper. After the vein is exposed and separated from the other structures a catgut ligature should be passed around it at the lower angle of the incision and tied, but the ends of the ligature should not be cut off. Another ligature should now be passed around the vein above but should not be tied. A forceps should be caught into the edge of the vein so as to keep it in sight but not to close its lumen. The vein may now be severed between the lower ligature and the forceps. If the vein persists in bleeding the upper ligature should be tied, the ends of both ligatures cut and the wound partly closed. If the vein does not bleed gauze should be packed around the cut end of the vein but it should not be tied. When the vein is not tied the wound usually suppurates as infectious matter comes down the vein into the wound. In a number of cases I have seen at the first dressing a mass at the end of the vein which I felt sure was a part of the thrombus and that it would have been in the patient's lung had not the jugular been tied. The only branches between the mastoid portion of the sinus and the middle of the neck are the two petrosal sinuses and the facial vein. Sometimes I have ligated above the facial branch. This has the advantage of lessening the bleeding from the jugular and increasing the chance of leaving the vein above for drainage. If there is any question regarding the condition of the lateral sinus and the advisability of ligating the jugular is still in doubt, the sinus should be exposed for at least an inch for inspection. If there is any difference in the appearance or the feel of the sinus in one part from another part it should be considered diseased and the jugular ligated. If the interior of the sinus must be explored it may be aspirated or punctured, but neither of these procedures is considered good surgery. If the sinus is found to be filled with a thrombus some recommend curettement with the idea of establishing a flow of blood from both directions if possible. Others recommend a long incision in the sinus with no effort at removing the obstruction. My practice in later years has been to incise but not to clean out the sinus. Hemorrhage from the sinus is easy to control if it should occur. A small piece of gauze packed into or against the sinus being all that is necessary. In dressing the mastoid after the lateral sinus has been opened it is a good plan to pack larger pieces of gauze against the small piece holding the sinus in such a way that the larger pieces can be removed without disturbing the small piece, for it is usually well to leave the small piece in position much longer than the mastoid wound should be left without dressing. Hemorrhage from the jugular is also easy to control, but if the vein above the opening is not obstructed by a thrombus a ligature will be necessary. The danger of air embolism, although sometimes denied, seems to me to be a real one. I have many times watched the exposed jugular fill and collapse in unison with the patient's expiration and inspiration. Of course this only happens when the vein is obstructed somewhere above the point of observation. If there is no obstruction the suction incident to inspiration simply draws blood down from above and keeps the vein well filled. This would seem to indicate that the danger of air embolism is greatly increased if the vein is accidentally or intentionally opened when there is an obstruction above. The question of what would happen to the patient if both sinuses should become occluded is one which frequently arises in the mind of the surgeon. A few cases are on record where both jugular veins have been ligated and the patient survived. Collateral circulation seems to have been established partly through the spinal veins and partly through the cavernous sinus to the ophthalmic and nasal veins.

DIAGNOSIS OF DUODENAL ULCER.*

H. J. Lehnhoff, M. D., Lincoln, Nebraska.

From a practical standpoint what constitutes a diagnosis in a case of duodenal ulcer? In the main the points to be determined are two, namely: First, Is an ulcer present? Second, if an ulcer is present, what are the factors that enter into the pathogenesis of its chronicity?

The pathogenesis of the initiation of peptic ulcer has had its place in the literature for some years. The neurogenetic theory, the embolic theory, the relationship between the formation of ulcer and the peculiar anatomical arrangement of the blood vessels of the wall of the stomach and duodenum near the pylorus, all have their adherents. The pathogenesis of the chronicity of ulcer, however, has had practically no mention.

At one period of its existence the ulcer was acute. We must take it for granted that some ulcers are short-lived and heal soon after their formation without interference. When the ulcer comes under clinical observation it is practically always chronic. Why a duodenal ulcer should come into existence is one problem. Why a duodenal ulcer should not heal is quite another problem. The latter is quite as important as the former. It is the latter, namely, the recognition of the factors which have to do with the production of ulcer chronicity, which now beckons your attention for a few moments.

FOCAL INFECTION.

It is a well-known fact that ulcers frequently occur and symptoms recur in the spring and fall, particularly the latter. By far more patients suffering with ulcer come to the office during the fall months than in any other quarter. These patients do not have symptoms running over a week or a month, but over years. It is not the first attack that brings them to a physician; it is the repetition of attacks. When the conditions of fall weather cause an old infection of throat or sinuses to become active, the unhealed ulcer becomes more active. It is fair to suppose, as has been stated often, that the exacerbation of the unhealed process above the shoulders is related to the unhealed process below the diaphragm. The two phenomena occur at the same time entirely too often to be regarded as merely concomitant. One results from the other. We are all quite agreed, too, that a new ulcer is not formed with each recurrence of this autumn or spring incident, but that chronicity has supervened. It is well, too, to recall the work of Rosenow in regard to this point. He found in the tonsils and at the roots of the teeth the same bacteria that were present in the walls of a chronic ulcer. Duodenal ulcer was produced in animals by injection of these bacteria in the blood stream of the animals. In other words, focal infection is a factor in the production of the chronicity of ulcer. Our diagnosis should recognize that fact.

NEUROSIS.

There are certain types of patients that we call neurotic. It would be impossible to fully describe the characteristics of these patients even if time would permit. In a word, these individuals have a nerve tension that is of a higher degree than common. In them, certain stimuli will produce reactions that are on the plus side of intensity rather than on the minus side. These plus reactions, these hyperfunction phenomena, are often reflected in the gastro-intestinal tract. In this class of patients is often found what we are wont to call spastic constipation. It was mainly in this group that Hess and Eppinger and others demonstrated their hypothesis of vagotonia. In these cases a hyperactivity of both the motor and secretory function of the stomach is more easily set in motion than in normal individuals. A more or less constant stimulus, such as a chronic appendix, a periduodenal adhesion, or a duodenal ulcer, will result in a stronger response of gastric activity. This increased gastric activity impedes the healing of duodenal ulcer. All of us can recall individuals of this type among the members of our own profession. How many times has it been related to us by a physician who had suffered with ulcer that under the influences of fatigue combined with the responsibility of decision between debatable courses of procedure (and particularly if these events occurred under the stress of a pressure of time) the symptoms of hypersecretion of gastric juice would recur. The more thoroughly we recognize these nerve reactions the more broad will be our knowledge of the chronicity of ulcer. To permit a high-tension, quick-reacting man of thirty-five or forty to return to the charge of a central grain office or to a fruit commission office after a month's treatment for ulcer, no matter whether the treatment be medical or surgical, is folly. The ulcer is not entirely healed in one month. The gastric secretions will be increased if a patient of this type is returned to an environment in which his excitability will again be increased. If the ulcer heals under the influence of increased gastric reaction it will be due to good luck and not to scientific management.

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*Read before the Nebraska State Medical Ass'n., Omaha, April 27, 1922.

GENERAL ANEMIA.

General anemia is a condition not uncommonly found in duodenal ulcer. It is often cited as one of the causes of the initiation of the formation of an ulcer. It is also regarded as one of the results of ulcer. It is highly probable that both of these ideas are significant. However, it is also significant that general anemia is a factor in producing the chronicity of ulcer. It is undebatable that, as a general rule, ulcers in any part of the body do not heal as well in an individual suffering with anemia as they do in an individual whose blood is up to par. This is particularly true of ulcer of the stomach and duodenum. More than twenty years ago experimentation produced lesions of the gastric mucous membrane in dogs by direct trauma thereof. These were kept from healing for weeks by routinely bleeding dogs to an extent that kept the hemoglobin down to a certain level. It is true these lesions were not ulcers. However, they should have healed more readily than ulcer. General anemias must be recognized as an influence that tends to diminish the chances of the healing of ulcer.

LOCAL ANEMIA.

The peculiarity of the arrangement of blood vessels in the wall of pylorus and duodenum has been quoted as a cause in the production of ulcer. If such be the case, is it not fair to assume that, after the ulcer is formed, the same influence continues and becomes a factor in the prevention of healing of this ulcer?

On the other hand, granted that the blood supply of the ulcer-bearing area is efficient under normal conditions, would the same be true in the presence of a duodenal ulcer? Recall the X ray presentation of gastric hypermotility and hypertonicity in the presence of ulcer. The stomach is contracted down to a steer-horn shape, the tonicity is marked, the peristaltic waves are increased, particularly in the pyloric segment, the pyloric sphincter forcibly contracts, remaining so for a few minutes to a few hours; against this closed sphincter the peristaltic action of the pylorus exerts a still greater effort to pass gastric contents along. What would be the effect of the hyperactivity upon both arteries and veins near the pyloric sphincter! Would not medical common sense conclude that under these conditions there would be a condition of localized anemia or even ischemia in the ulcer area, or if not that, at least a passive congestion, either one of which is not advantageous to the healing of the ulcer present?

INFLUENCE OF PATHOLOGY IN OTHER ABDOMINAL ORGANS.

It is highly probable that infection from other abdominal organs, such as the appendix and gall bladder, passes more or less directly to the ulcer area. If such is the case this phenomenon is a factor in keeping an ulcer active. That is, these organs are in reality sources of focal infection. However, in addition to the factor of infection there is another factor related to the above pathology that has its influence upon the production of ulcer chronicity. It is an established fact that chronic inflammation or chronic irritation in other organs of the abdomen will cause a hyperactivity of gastric function by reflex nerve action. Among the organs responsible for this reflex action, the appendix and gall bladder are preeminent. It is a very common experience to find all the symptoms and physical signs of hyperacidity in the presence of chronic appendicitis alone. The Roentgen laboratory and the chemical laboratory have repeatedly demonstrated a hyperfunction of both gastric secretion and gastric motility and tonicity, with no other cause than an irritable appendix.

The same phenomenon occurs under similar conditions of the gall bladder. Ulcers tend to remain unhealed in the presence of increased gastric function. These chronic conditions of appendix and gall bladder are factors in the production of ulcer chronicity. To recognize these conditions in addition to the recognition of the presence of an ulcer is important. To treat a chronic ulcer in the presence of a chronic appendix or chronic gall bladder is certainly irrational.

ANATOMICAL RELATIONS OF STOMACH AND DUODENUM.

Nearly all authors advise against the practicability of treating ulcers in the presence of marked gastric deformity, such as hourglass contractions and deep, wide pocketing. Adhesions to the stomach and duodenum have been given but little consideration. If present, they should be a part of our diagnostic picture. Those adhesions in particular which are situated in close proximity to the pyloric sphincter are in most cases a source of irritation and excitation. If they are so situated that they produce pain or transient pronounced deformities of duodenum or pylorus, they must be considered as factors in ulcer chronicity.

INCREASED GASTRIC SECRETION.

Increased gastric secretion has been hinted at above. We are inclined to consider hypersecretion from the stomach and hyperacidity in terms of hyperchlorhydria. This is not necessary. Increased secretion from the stomach is practically always acid. Hyperacidity, be it caused by free hydrochloric acid or by other acids, is, so far as we know, just as great a factor in the prevention of the healing of an ulcer as in the presence of free hydrochloric acid. At least, in endeavoring to determine the importance of the factor of acidity in preventing the healing of ulcer, one should not entirely overlook the total acidity and the total amount of gastric juice and consider only the amount of free hydrochloric acid. Every clinician can recall cases of chronic duodenal ulcer in which the increased amount of total acidity was out of all proportion to the amount of increase of free hydrochloric. Then, too, by way of analogy, an excessive secretion, though it be only slightly acid or even alkaline, flowing from any organ or tissue is not as a rule conducive to healing of diseased tissue with which it comes in contact. For example, diarrhoeal stools excoriate the skin. A lacrymal overflow (caused by an obstructed tear duct) will lead to ulceration of the lid. A vesico-vaginal fistula is not wont to heal as long as it is flooded with urine. Chronic ulcer of the cervix uteri resulting from excessive cervical secretion is a matter of common experience. Likewise an excessive secretion from the stomach, even though the percentage of free hydrochloric acid is not abnormally high, is conducive to chronicity of ulcer rather than to healing of that lesion. Excessive gastric secretion and its effect upon the production of chronicity of ulcer should be a part of our knowledge. Sippy has recognized this fact for years.

PROXIMITY OF DUODENAL ULCER TO THE PYLORIC SPHINCTER.

It is a well known fact that the great majority of duodenal ulcers occur within one-half to one inch of the pyloric sphincter. Ninety-five per cent are within one and one-half inches of that muscle. Let us again argue by analogy. For years we have recognized the difficulty of healing an ulcer or a fissure within one inch of the sphincter ani without dilating and thus paralyzing the latter muscle. The same principle applies to chronicity of ulcers near the pyloric sphincter. The latter is as powerful as its fellow at the distal end of the intestinal tract. Whatever the modus operandi, ulcers do not heal readily that are in proximity to these sphincters. It must be borne in mind, too, that in the presence of an ulcer the muscular activity of the stomach, and particularly the sphincter, is much more pronounced than in the normal stomach. The Roentgen ray has repeatedly demonstrated that the pyloric sphincter remains in a state of constant contraction, to the extent that no fluid passes through it for hours. One cannot expect an ulcer to heal under such influences.

In conclusion, is it enough merely to diagnose the presence of an ulcer? Is it not more safe, more rational, more comprehensive, more broadminded, to endeavor also to ascertain and bear in mind those factors which speak for the pathogenesis of chronicity? By having these factors in mind will we not be treating patients rather than ulcers? By having this knowledge, can we not better decide upon the method of treatment to employ in each individual case, and will we not gain better results from such treatment?

DISCUSSION.

W. O. Bridges, M. D., Omaha: I think this is one of the best papers I have heard before this meeting of the association. I am glad to have been here to hear it. It is out of the ordinary line of the conception of peptic ulcer. I should like to hear the same presented before the meeting of the American Medical Association at St. Louis. Of all the prominent men at that meeting, I doubt if they will "put one over" on us.

The point of conditions which lead to the chronicity of ulcer is the important point, in my mind. Time and time again I have had patients come to me who have had a gastroenterostomy, and have a recurrence of symptoms which lead to a determination that the original cause of the persistency of the chronicity had not been relieved.

Chronic ulcer should be treated differently from acute ulcer. It requires operation for its cure. If these conditions Dr. Lehnhoff has described are not cured, we are not going to have cures from gastroenterostomy.

Dr. Lenhoff: I merely want to say there are a number of minor points that could be added to these few sub-heads I mentioned, but I do not think I will take time to give any more of them.

I thank Dr. Bridges very much.

THE MANAGEMENT OF ACUTE RETENTION OF URINE WITH SPECIAL REFERENCE TO THE ENLARGED PROSTATE.*

John E. Summers, M. D., Omaha, Nebraska.

It is not an unusual occurrence for a physician to be called upon to relieve a man suffering from acute retention of urine, and although it might be interesting to mention the symptoms leading up to the several causes determining an acute retention, I wish only to mention several conditions not the result of trauma nor the introduction of foreign bodies into the urethra from without. The retention of urine sometimes met with in common illnesses and as a post-operative condition, being temporary and incidental, will not be discussed. My earliest experience was when called upon to relieve a man suffering from acute retention of urine of many hours' duration due to the complete closing of an impermeable stricture of the membranous urethra. This was many years ago. I was temporarily the only doctor at an army post more than two hundred miles from a railroad and no other doctor nearer. This man was relieved by my doing an external perineal urethrotomy without a guide. Later the stricture was successfully treated by gradual dilatation, commencing with filiform bougies, after the congestion which had brought about the complete closure of the stricture had subsided. Many more or less similar cases have come under my care but I have never since resorted to this same procedure. My patients have been relieved either by a perineal section under vision, aided by a sound passed until its point was arrested at the distal end of the stricture, or else the bladder has been aspirated suprapubically one to three times to relieve the distress, and usually when this has been done I have been able to carry out a dilatation as in my maiden effort. I have seen one death from too frequent suprapubic aspirations of the bladder,—retroperitoneal infection occurring, either a leakage of infected urine from the bladder or the needle in its withdrawal being the cause,—**real dangers.**

The old practitioners tapped the bladder with a trocar and cannula through the perineum, rectum, or suprapubically, slipping a soft catheter through the cannula for more continued drainage.

I was called to one of our cities to operate upon a middle aged man with acute retention of urine. All efforts at catheterization had failed, (the catheter passing to the deep urethra); there was a history of increasing difficulty of urination. I did a suprapubic cystotomy. There being nothing in the bladder to account for the retention, I attempted to retrograde passage of a sound intending to do a perineal section for the cure of the supposed stricture,—a favorite practice with me after urinary infiltration from behind a stricture. My sound struck a stone fastened tight in the prostatic urethra; it was removed with some difficulty. One must bear in mind the possibility of such an occurrence.

A man about sixty years of age was sent me suffering from acute retention. He was septic, delirious, and very ill; the external genitalia were very oedematous and threatening to slough from an extravasation of urine. Free incisions disclosed an ulcerated and regionally destroyed urethra, and in the tissues outside between the bulb and the peno-scrotal juncture was an irregularly shaped calculus the size of a large almond. This man unexpectedly recovered, a new urethra forming around a properly placed catheter; however, I learned he had considerable difficulty in keeping the urethra in a functionating condition because of neglect in carrying out instructions. These instances are merely mentioned in calling attention to things to be thought of when summoned to relieve an acute attack of retention of urine. The history, of course, is of all importance, but it may be deceiving.

By far the greater number of cases of acute retention of urine which we are called upon to relieve are men of middle life or past, the subjects of enlarged prostates, and there is not an unanimity of opinion as to how this practice should be carried out. It is a conceded fact that in the great majority of instances these men can be relieved by the passage of a large, or moderately large, soft catheter or a properly curved catheter coude or a metal catheter. When this practice cannot be successfully carried out it may be later, after the congestion is overcome, by several suprapubic aspirations of the bladder. There is an old tradition that it is very dangerous in acute retention of the prostatics to withdraw all of the urine, i. e., the excessive amount, with what might still be called the residual amount, to which the organ has become gradually accustomed. Congestion of the bladder walls with hemorrhage into the bladder, and congestion of the kidneys with suppression of urine are the great dangers said to very frequently follow. Therefore it is recommended when relief cannot be afforded with the catheter, that the technique of suprapubic trocar and cannula, or a cystotomy inlay of a catheter be so carried out that only a part of the urine be allowed to escape at the time of operation. In those suspected of poor kidney function and high blood urea content, instanced by threatening uraemic symptoms, a kind of so called decompression technique is recommended, which only admits of a gradual leaking out of the urine. This latter I think is the carrying out of a sound surgical principle, the reasonably gradual restoration of function in extreme conditions whether it be of the brain, the heart, the lungs, or the kidney. Some urologists remove all of the urine, replacing it in part by a solution, for example, a boric acid solution. I am of the impression that the majority of fatalities following catheterization or other means of evacuation of the distended bladder in the prostatic, are due to secondary infection. The cause is, rather too late relief,—or it is conducted in an unsurgical way. How often, except in special hands, is such a catheterization done in an antiseptic—aseptic manner? There can be no argument but the modern preparation of subjects for prostatectomy has greatly reduced the mortality. The restoration of kidney function is the key note, as best evidenced by the reduction of the amount of blood urea to the minimum. The clearing up of infection of the urinary tract is very important—likewise a general study of the patient.

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In several of the most successful urological clinics of which I have knowledge, where many cases of acute retention of urine in prostatics are admitted yearly, no attention is paid to the so called incomplete evacuation of the bladder—and I believe except in the extreme types of cases,—the uraemics, the necessity is a myth. This is based upon an observation not as a urological specialist but as a surgeon with general observation tendencies. I have some consolation in this opinion from one of the most reliable sources of successful practice in any country. I asked Dr. Edwin Davis to write Dr. John T. Gerahty as to his opinion based upon the experiences of the Brady Urological Clinic in Baltimore, and Gerahty writes as follows: "In regard to Doctor Summers' question about the gradual reduction of urine in the bladder. We still continue to withdraw the residual urine at one time without replacing any certain quantity of fluid. I am aware that at the Mayo Clinic they are making quite a point of the gradual reduction of the quantity of urine in the bladder and they seem to think that by doing so they diminish the risk of kidney suppression. It has not been my experience that suppression follows the withdrawal of urine from the bladder if the residual be taken away all at one time. There is, however, a certain dangerous group of cases—those who have from 800 cc. to 1500 cc. of residual urine which has been present over a considerable period of time. Their phthalein is moderately or very markedly reduced and nearly always there is no infection in the urine. Following the removal of the residual urine, whether it be done with a catheter or suprapubic drainage, it is not uncommon to have these cases go through a trying period and not infrequently evidencing symptoms of uremia which were not present before the residual urine was withdrawn. It has been my opinion that this sudden change in the renal picture is due, not so much to the withdrawal of the urine, as to the fact that these patients develop an acute pyelonephritis which produces rapid reduction in the renal function with the onset of uremic symptoms. This is the type of case upon which we operate without preliminary treatment and which usually has a serious consequence.

It would seem that at the Mayo Clinic they consider the withdrawal of the urine is to prevent this sudden onset of pyelonephritis. This to me is very doubtful and I take very little stock in the opinion that the gradual withdrawing of the urine prevents an acute congestion which they think occurs. The acute congestion alone without infection would be of absolutely no consequence and would seem to be a temporary condition without any serious result. As I have stated above: In my experience all of the cases that have shown renal disturbance following the removal of a large urine, the disturbance has been due to the onset of an acute pyelonephritis. It seems to be very doubtful that the gradual reduction of the residual urine would diminish the possibility of this complication."

I am firmly convinced that no one single factor has contributed so much to the successful outcome to be expected in the operation of prostatectomy as continued and sometimes long continued preliminary drainage, in selected cases,—bad risks; yet in many instances it may be overdone and complicating infections introduced.

Hunt states in the 1920 Mayo Clinic Volume that "in the past two years 24.4% of the patients subjected to prostatectomy did not receive preliminary bladder drainage; 29.9% had intermittent urethral catheterization; 21% perineal drainage by catheter; and 24.7% suprapubic drainage."

This question of complete or incomplete evacuation of the bladder in prostatics suffering with acute retention of urine is of importance to every general practitioner of medicine; he so often is called upon to afford relief to such patients and his action may have a determining influence in the future chances for life of the individual.

By calling attention to this important subject, thus promoting discussion, all of us may benefit. Especially may we learn from family physicians whose knowledge is gained more by intimate associations with their patients and interested study, than can possibly be that of the specialist whose interest is too often that of the consideration of a case.

DISCUSSION.

F. A. Brewster, M. D., Beaver City: This paper of Dr. Summers has been so thorough and complete I will not take up very much of your time to add any more. Dr. Summers has been located for twenty five years in the eastern part of the state and I have been about that long in the western part. This would make some difference in regard to the condition in which we find our patients and our facilities for handling such cases would vary also.

A great many physicians over the state are very poorly equipped to catheterize some of the difficult cases, their main equipment being a soft rubber catheter and a short curved metal catheter commonly carried in a pocket case. The result is, many of these patients have gone twenty four to seventy two hours without relief, and the doctors have made a few unsuccessful attempts at catheterization which have led in many cases to false passages with more or less hemorrhage. In the management of such cases, it occurs to me a small sterile needle carefully used perhaps would be better than to let these patients go until more effectual means could be followed out. A small needle will relieve the pressure in the bladder, and perhaps save the patient from serious damage from dilatation of the kidneys and ureter, and also do much to relieve the pressure of the urinary tract. Notwithstanding the fact that some surgeons claim the bladder should never be punctured, I think where a patient is a long distance from a hospital and it is not convenient to give efficient surgical attention, the rule of using a small needle and relieving the pressure until the treatment can be carried out more effectively is the rational way to take care of such cases.

Personally I have never seen any bad results from completely emptying a distended bladder.

Dr. Summers: What I wished to have brought out in the discussion was whether in cases of acute retention of urine, particularly in old prostatics, all of the urine could be safely evacuated at one time or only a part of it. A little while ago a case of the type Doctor Brewster spoke of came in late at night, having ridden forty miles in an automobile. Unsuccessful attempts in the use of the catheter had been made and I was unable to introduce one myself. Under local anesthesia the bladder was evacuated by suprapubic cystotomy. There were no unfavorable complications following. Later the prostate was removed successfully by enlargement of the cystotomy incision. The man made a satisfactory recovery. Every practitioner of medicine sees like cases. Have you seen them die when all of the urine was evacuated at once, by whatever means employed? I never did. Some of these patients are going to die anyway, but it is not the catheterization that kills them. The reason they die is that they should have had earlier common sense consideration.

OVERMEDICATION IN INFANCY AND CHILDHOOD.*

W. O. Colburn, M. D., Lincoln, Nebraska.

Pediatrics is practically a new specialty and in the last decade many physicians have limited their endeavors to this field of medicine. Perhaps no specialty has grown so rapidly or made such great progress as this one.

Heretofore, the Materia Medica and Therapeutics of adults was applied to the child by a simple reduction in doses; for example Young's or Bastedo's rule of dosage. Pediatricians are finding that it is not feasible to accept rules based on adult dosage. Helmholz in a recent article calls attention to a few facts showing the errors of such a method. For instance in the newborn infant about 23% of the total weight is in the muscles, compared with 43% in the adult. The relative weight of the infant's liver is about two and one half times greater than that of the adult. This is of great importance, for a number of drugs do not distribute themselves equally over the body, but have certain affinities for various tissues or constituents of tissue.

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*Read before the Nebraska State Medical Assn., Omaha, April 27, 1922.

The affinity of many narcotics for lipoid tissue is well known. Certain drugs are well tolerated by the infant, while others are not. Helmholz proposes that the Section on Pharmacology and Therapeutics of the A. M. A. recommend to the proper authorities the appointment of a committee for the purpose of studying the problem of the therapeutic action of drugs and their dosage in infancy and childhood. This is a timely suggestion, and no doubt will soon be worked out.

Dr. Jacobi, the father of pediatrics in this country, once said: "Most conditions in childhood right themselves without any medication" and "I believe we are justified in assuming that the man in general practice uses too much medicine rather than too little for the welfare of his little patients."

All physicians know that an infant may apparently be very sick one hour and almost well the next. The digestion and metabolism of the baby are very unstable, and we still have much to learn about the causes of these sudden changes. The nervous system is likewise in a state of uncertainty, and convulsions are a factor in these early months of existence.

Progress in medicine has been along the lines of a more careful determination of what is really wrong with the patient, and then the application of drugs with a definite indication in view. This resolves itself usually into the use of a single drug, rather than a mixture of drugs, or the so-called gunshot prescription. In infancy, therapy other than that of drugs does and should receive a great deal of consideration.

The initial procedure in almost every case seen by the physician of today is to give a cathartic in some form and usually in the form of a drastic purgative. From the standpoint of the infant I wish to attack such management vigorously. A few physicians still start the newborn infant out in life with a dose of castor oil, and yet it is now believed that the meconium itself excites the rectal reflex, which gives one the desire to defecate.

Some renowned pediatricians of the country do not believe in the use of cathartics during infancy, while others equally as well known, believe in a restricted use, the so called initial catharsis at the beginning of any acute illness. Personally, I have no use for laxatives in the first year of life, with a few possible exceptions, and I am finding less use for them throughout childhood.

It has been proven that castor oil, calomel and magnesium sulphate given to well babies will produce microscopic blood in the stools. If it does that, it is reasonable to believe that it is easy to get absorption of the pneumococcus into the intestinal mucosa, and cause a paresis of the bowel due to this germ as described by Heiman in his paper on Pneumococcus Peritonitis. Likewise a simple diarrhoea may become an infectious one by the administration of a physic. In fact any infection of the upper respiratory tract may be transferred to the intestine, and find a wonderfully fertile field in these tiny microscopic bleeding points in the mucosa of the bowel caused by any of the usual cathartics so frequently administered.

In my own practice, I have no use for a cathartic in pneumonia cases, and I seldom ever see a case of abdominal distention, a condition which is rarely absent where castor oil is given daily to sweep out the swallowed poisonous mucus. I never think of using a cathartic, even as an initial dose, in diarrhoeas, simple or infectious in character, and I am sure they make a more rapid recovery.

There is one symptom that stands out so plainly in the infant that is almost always present in every acute infection running a high temperature, and that is an acetone odor to the breath, which is a warning to the physician that the fluids of the patient are being sacrificed faster than they are being supplied. These fluids soon reach such a low level, so to speak, that vomiting occurs, and our little patient is bordering on an acidosis. In a diarrhoea, the loss of fluids are still more rapid, and if no attempt is made for their replacement, we reach the same condition much more quickly and there is a marked dehydration of the child's tissues. More frequently than otherwise, a cathartic of some sort is given at this time, which further depletes the system and often the fluids are entirely stopped because of the vomiting. I am sure I am safe in saying that most pediatricians are agreed that cathartics are not indicated in diarrhoeas. Furthermore, the administration of an opiate to a case of diarrhoea of moderate intensity has converted it into one of profound toxicity. Most diarrhoeas can be classified under three heads, viz.:

1. Fermentative.
2. Proteolytic.
3. Infectious.

The first two, which comprise most of the cases that we see, are easily treated without the use of cathartics or drugs. The fermentative type rapidly disappears with the use of protein milk, while the proteolytic type responds to a carbohydrate solution, later followed by protein milk.

The dehydration must not be overlooked and water and alkalies must be supplied in various ways. If vomiting, then by rectum, subcutaneously, intraperitoneally, intravenously, or by a combination of two or all.

In the feeding problems of the infant, too frequent use of drugs of various kinds, but mainly laxatives, are resorted to when a careful survey of conditions such as interval, regularity, and amounts of feedings, together with a careful observation of the stools, might lead one to alter the percentage of fats, carbohydrates, or protein and insist upon regularity to the minute.

In conclusion. I beg that my remarks on overmedication be construed not altogether as critical, but as an earnest plea for your cooperation in overcoming this widespread abuse. All of us, myself included, have done much to teach the laity that a physic is the very first thing to do in the way of medication, the patent medicine venders have spent millions on such propaganda, and received dividends in hundreds of millions. Medicine is a wonderful science, but we must be scientific in its application.

DISCUSSION.

E. S. Wegner, M. D., York: I think it is up to the pediatrician to call attention to this subject, as has been done here this afternoon. I have not a great deal to add. I hope that there will be time enough so that this subject will be thoroughly discussed.

The point which Dr. Colburn has not brought up in his paper, that I should like to bring to your attention, is the fact that we see so much of chronic constipation in children, and I think, with possibly a few exceptions, textbooks on pediatrics always call our attention to the etiological factor of cathartics in infancy and childhood as the cause for this chronic constipation. I should like to hear a discussion on that side of the question.

Dr. Colburn has called our attention to the danger of cathartics in diarrhoeas of infancy and childhood. I was interested a short time ago in reviewing a paper by J. Christopher O'Day, not on the use of cathartics in infancy, but pertaining to the subject of surgery, or cathartics in preparing patients for surgery, following the work under the direction of Dr. E. Kline by which he demonstrated the method of the absorption from the lumen of the intestine of chyle, calling our attention particularly to the protective mechanism there to prevent organisms entering with this chyle. O'Day went further, and in a series of one hundred experiments in which he took blood specimens from one hundred people before a purge was administered, in no case was he able to obtain a culture by putting this blood into his culture medium. But in sixty two out of one hundred cases after a purge was given, he was able to get definite colonies on his culture media, showing it was through the irritation of the intestinal tract that these gained access to the blood. He went on to say this bacteriemia continued twenty hours after the administration of the purge.

This should serve to warn us against the use of drastic purgatives in infancy and childhood except where they are positively indicated.

There is no question in my mind that we are using too much medicine in infants and children, and especially the cathartics. Dr. Colburn has made a plea for the application of our scientific knowledge in this respect, and I think if we look back through the history of medicine, we will not find that the use of cathartics has been demonstrated as of any definite value by scientific research or experimentation.

Newell Jones, M. D., Omaha: Some five years ago in talking to the nurses in one of our hospitals in which there was a large amount of obstetrical work being done, I condemned the initial dose of castor oil. Before the obstetricians got through with me, I thought I would be bald healed; but I saved a little. I am thankful to say that since then most obstetricians have stopped using the initial dose of castor oil.

The large percentage of children we see with constipation, some doctor has tried to cure with castor oil. Don't we all know the secondary effect of castor oil is constipating, and a dose given every four days to two weeks is going to leave a constipated baby and a constipated child and a constipated adult? I believe the large majority of our chronic constipation in infancy is the result of overmedication by the use of castor oil, suppositories and enemas.

It is still the rule of a lot of physicians—none of them here—to say: "This baby's bowels must move two or three times a day. If they don't, use a suppository or injection or give castor oil or do something." You will never get by without doing that "something" all the time.

It is not only in the question of cathartics where we get overmedication. A short time ago we saw a case of acute nephritis in which, checking up the prescriptions of the doctor with whom we saw the case, the child was getting seventeen different drugs a day! That is only one instance. We could name them right along—the giving of a shot gun prescription for an ordinary cough, with ten or twelve ingredients, mostly sugar—and things of that kind.

If we expect to get anywhere with the treatment of children, we must treat them for what is the matter with them, and not for the druggist.

F. A. Wells, M. D., Axtell: I am not prepared to say I shall never give a dose of castor oil to an infant, but I do not give very many. I have tried for a good many years to get the proper number of bowel movements by proper feeding, and where the baby is breast fed, by the proper feeding of the mother.

I have seen a number of children who have been made constipated, at least through childhood, by the injudicious administration of cathartics. I think we owe a duty to ourselves and to the child that we are treating, at least not to do more harm than we are doing good.

A. N. Anderson, M. D., Lincoln: I am glad to hear that Dr. Colburn and some of the rest are condemning castor oil as a cathartic for children. I think a good many babies have been injured and suffer from intestinal troubles afterwards, and some babies have no doubt died from the results of using castor oil indiscriminately.

The regulation of the diet of both the child and the mother has a great deal to do with good evacuations in the child. A very simple remedy I use in my practice when I need a cathartic for the babies—and they do not very often need it—is olive oil. It is harmless and causes a mechanical evacuation of the bowels. I find it very good.

I am glad castor oil is being eliminated.

Dr. Colburn, closing: I have really very little to offer in closing.

I am glad our profession seems to be headed this way against at least overdosing of physics. It was whispered to me a minute ago about enemas. We are really about as much against the use of enemas as physics. We do believe most of these cases can be corrected wholly by dietary means.

Perhaps the olive oil is a step in the right direction; but while we have liquid petrolatum, it seems to me that it would be a better substitute than olive oil, and sometimes we feel justified in mixing a little with the feelings.

THE RELATION OF MEDICINE TO THE LAW.*

C. C. Flansburg, Lincoln, Neb.

In speaking to you upon the subject allotted to me, "The Relation of Medicine to the Law," it is not my purpose to compare your profession and my own.

Time was, when much jealousy existed between these callings, so that it was common practice for each to extol his own and belittle the other; so that each when considering the other, wondered, "if anything good could come out of Nazareth."

But that ancient feeling of jealousy and all thought of rivalry has long since been left behind in the march of progress; so that today each profession concedes to the other, not only utility and efficiency, to an absolute degree, but confesses the need of the other in the discharge of professional duties and obligations. And in our own day, fellowship and good feeling exist to the extent that each willingly lends aid to the other.

One thing, I feel certain I may say on this occasion with assurance — and that is, that ours are the two learned professions. I think we may easily agree on that. But aside from that there are many things we hold in common. Both professions are alike in their exactions; in their constant and jealous demands; in their insistence of an undivided fidelity and loyalty; and always and everywhere the best of each individual, must be poured out with utter devotion, with utter consecration to the cause we serve. Nothing less than our utmost can satisfy.

Not every one in your profession, however industrious or devoted, even though aided by chance and circumstance, can make his name a landmark in the progress of your calling; nor in ours can every one become a great high priest in the temple of justice. But in either case the desire is worthy the ambition of any man, and in both professions alike, we must, if we are even to remain, be votaries at the shrine of service.

Medicine is as old as the first injury; law as ancient as the first dispute.

Caring for the sick and injured was at first undertaken by those who were nearest in blood to him, by those in closest relation. The heart of it then, as now, was the desire to help—to be of service to another. In course of time, certain individuals with patience and tenderness, evinced aptitude for such service and were naturally turned to for aid. Such calls led them to devote themselves to study the art of healing, to consecrate themselves to relieve the sufferings of others. As demands for such service grew, others were made assistants; and so in time there came to be a body of healers, who interchanged views, counseled on remedies, and thereby established a school of treatment; resulting in our day, in the highly trained and intellectually developed body of medical men, on whom the whole world looks with favor.

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*Read before the Lancaster County Medical Society, March 18, 1922.

On the other hand the origin of law was different. Disputes were first settled by force. The strongest arm and the heaviest club were always right—the strong prevailed over the weak. As the weak had no physical power to maintain their rights against the strong, the weak began appealing their disputes, first to the head of the family or the patriarch of the tribe, whose decision was final. But as reason developed, it sought to supersede the arbitrament of force. It became necessary to call assistants to the aid of the tribal chief. It also became necessary to formulate rules of decision, and to follow established and existing decisions. Out of this came the body of trained legalists — men developed by the necessities of the social order, into experts.

We find both professions alike, therefore, in this; that in both, the method originally was empirical; that progress came up out of knowledge, gained by experience and observation. In fact among the ancient Greeks, their physicians maintained that experience was the only essential, resulting in a mere generalizing from such limited facts as experience and observation established. But in our time, all this has given way to philosophic and speculative adventure; a dealing with the scientific evolution of cause and effect; a looking forward in anticipation, until your early ambition has been realized in the preventive medicine and reconstructive surgery of today.

Each of these two learned professions has a nomenclature of its own; originally, the one hid its ignorance in long Greek names, the other concealed its want of knowledge in barbarous Latin, Norman, French. In each was the mystical—a hiding from the uninitiated, in high-sounding and foreign phrases, that knowledge, each pretended to possess—while attempting to dignify the calling, and remove it above the laity by unintelligible terms.

In both professions there have always been good men, and bad; excellent doctors and lawyers, as well as quacks and shysters. And from the very first, or at least as far back as we have history, every quack and shyster has played his part, extolled his prowess, and promised the impossible—always for a consideration.

In medicine many charlatans have flourished, boldly promising the impossible.

Transplantation of members was among the most ancient, and cannot be said to be a novelty of modern times. More than five centuries ago, limb-grafting was claimed to have been successfully accomplished and ancient engravings show black limbs engrafted on white persons, working perfectly; the color being accounted for in a foot note stating that no white man would sell his limbs, so that they had to be secured from colored persons who were willing to part with them. It remained for the twentieth century to claim a larger advance, under which, transplanting ears and eyes to deaf and blind millionaires, those able to pay the price, has been claimed as possible, though probably employed more for publicity, than belief in its practice.

While in our profession, shysters continue the quest for lost heirs of vast estates — these legal philanthropists seeking to secure for such unknown heirs an equitable distribution of fabulous estates—in consideration of a small stipend to cover expenses of preliminary investigation—payable invariably cash in hand.

Doubtless your profession preserves its ancient history. Operations in surgery when only stone implements were used; Caesarian section practiced before the Christian era; while modern discoveries and practice mark your advance. While in our profession, we have not only the historical code Justinian, but in recent years and discovered in the present century, the code of Hammurabi, antedating Moses one thousand years at least, in itself a complete and perfect codification of the law.

In both professions there are great names now, as there have been in the past; there are in both great achievements; great members in each have honored their calling by individual effort. And in each, we share and cherish these names and traditions.

In both professions, much work is done for the needy; without hope or expectation of reward, save only the satisfaction that comes from the consciousness of having spent ourselves and our art, for the needy in a worthy cause.

Both professions have been alike the subject of satire and jest and jibe in article and cartoon. So much then we hold in common.

But one may ask, if all that be granted, yet what relation does medicine now sustain to the law? To the casual observer there might seem to be none; yet every branch of medicine—all your knowledge and skill—is of necessity subject to the demands and purposes of courts; so that the limit of your relation is on the one hand the demands of the law, and on the other, the whole range of medicine—your knowledge of anatomy, physiology, chemistry, medicine, surgery, physics, botany, microscopy, X ray, photography and the numberless means and methods you employ to establish medical facts. All these must lend their aid, as needed, to assist courts of law in arriving at a proper conclusion of many questions, concerning not only rights or liabilities, but the distribution and ownership of property.

So it is, that each physician and surgeon will find subjects arising in many emergencies, varied in character, demanding inquiry and solution—to which he must adapt his knowledge and experience. From the range of facts and circumstances he must elucidate such medical facts, and make proper application of medical principles thereto, as may be necessary to enable a judge to submit the matter to a jury in an intelligible manner, so that the jury may in turn be aided to a right conclusion; and no one of you can tell when your presence in court as a medical witness may be demanded. It may be in connection with your next call.

In our complex civilization, with its multiplied opportunities for accidents, its modern methods of rapid transit, its intricacies of commerce, its engines of trade, manufacturing and business, with resulting injuries therefrom, the professional demands upon you are greatly increased, not only as an attending doctor or surgeon, but out of such experience and your observation, must come expert testimony in many cases, for the benefit of courts.

The facts alone which increase the demand upon your time, your knowledge and skill, (not only in caring for your patients, but in recounting your observations and applying your knowledge in that great variety of cases which result in court decision or consideration) necessitates greater demands upon your time in relation to the law, outside of your strictly professional duties.

And in attendance upon accidents, upon disease, and other emergencies of life, you will often find yourself placed in a situation of difficulty, from the accidental occurrences of cases which may demand subsequent legal investigation.

May I furnish some illustrations?

You are summoned hastily to attend a person suffering from poison; you may not suspect at the time that poison has caused the particular symptoms which you observe. In spite of your best efforts, the patient succumbs. Your duty as a medical man ends with the death of the patient; but if the poison was criminally administered, the state begins investigation and you become an important witness. You can not avoid giving evidence, for the law will insist on applying your knowledge and experience and observation at the time you were called, to the solution of its theory; the establishment of the crime; and the punishment of the criminal.

Let me call attention to a recent occurrence in our midst. A few days ago a man was found stabbed to death in an apartment on South Eleventh Street. The physician who was called found that death had ensued. There was then no duty for the surgeon to perform, for his duty to the injured ceased upon his death; and yet the duty of the physician to the State had just begun. In all cases of death by gunshot or other wound, the size and character of the wound —the direction whence it came—while immaterial to you as a medical man treating a patient, become important upon the death of that patient, for then you become a witness for the State.

Then you will be subjected to all sorts of inquiries; how was the wound made, by bullet, by a sharp or blunt instrument; are the red spots on the knife or clothing effused blood; what was the position of the deceased when you arrived; did he move after being wounded; could the wound, from its character and nature, have been self-inflicted; what statements, if any, were made by the dying man; and other questions which readily suggest themselves.

Your value to the State will depend upon your answers to these questions, and your answers will depend upon that rare power and ability which many doctors possess, to apply their powers, knowledge, observation and experience to the emergency in which they act; for as citizens living in a condition of modern civilization that demands punishment against crimes as indispensable to the security of all, it is impossible to overrate the importance to the State of your observations at the time.

Or, take another case: An accident occurs to one through alleged negligence of a corporation. In many industrial centers, where personal injuries frequently occur, regular organizations are sometimes built up, by attorneys, who employ solicitors to secure the business, doctors to administer and treat the patients, and trained experts to secure evidence. In many instances the injured man has been solicited or perhaps contracted with, even before the medical man reaches him; and often he has been coached, as to the extent of his injuries and what answers he should make to the doctor first seeing him. The patient claims a permanent injury, destruction of his earning power and resulting damages. If the physician regularly employed by the attorney in such cases can be first sent to the injured man, this is done; and every advantage taken of chance and circumstance to prepare for legal recovery.

The plaintiff will come with halting step to the witness stand—prepared to prove his claim. Frequently the incidents of the accident are gone over with the plaintiff previous to trial, so frequently and to such an extent. that plaintiff accepts finally the statement of his counsel as to certain essentials, and testifies thereto in the full belief that he is stating only facts.

In all just claims, the practice is to make settlement where that can be done. And where the injury is simulated, it is only through the skill and experience of the medical profession that frauds may be detected and unjust claims defeated.

Under the employers liability enactments, there is less likelihood of simulation and imposition; but even there, your skill and experience are necessary to a proper determination of the extent and character of the injury.

So again in the matter of establishing writings of deceased, as testamentary documents, you will find it necessary to pass upon the mental condition of the author.

In all these matters demanding your expert opinion, based on knowledge, observation and experience, you should not, in preparing for your examination, underrate the ability of counsel. The careful lawyer calls to his aid the best ability in your profession and goes into intensive training to familiarize himself not only with your nomenclature, but also with the advanced thought in your profession in the matter of symptoms, diagnosis, examination and treatment.

And when you come into any court offering yourself as an expert in your profession, you must come expecting to be flooded with ingeniously framed hypothetical and other questions, calculated either to distract the attention of the jury from the real issue, or to show your want of familiarity with the particular issue in hand; and these will tax your mind and memory to the utmost. For all this, you must come prepared, as many of you have learned.

Another thing that is well to remember, is, that when called, you are there to aid the court rather than one of the parties; and in the measure that your answers are full and frank, the court will exercise its power to protect you from unfair examination; while opposing counsel will quite likely recognize your candor and the danger which always arises from the cross examination of a candid witness.

It is thus manifest that the duties of medical men, aside from their medical service to patients, are of great benefit to society, and their experience and expert knowledge is a protecting power in suits against individuals and corporations; and the most obscure member of your profession may, as I have already pointed out, find himself suddenly summoned as an important witness to pass through an exceedingly trying ordeal, out of which he can come triumphantly only with patient preparation and candid statements in his answers.

It is often said that members of your profession are the worst of witnesses, in matters of fact and opinion; but it must be remembered that members of your profession are called upon more frequently than those of any other, and the many complex, difficult and involved questions put to you, are not to be compared with those put to any other witnesses.

Another difficulty in your court work is, that the medical man frequently regards only those obvious symptoms, diagnosis, recognition of the malady and manner of treatment of the accident or disease. Yet his observation should take a much wider range and comprehension of the surrounding facts and circumstances, if his powers and ability are after all, to be of the greatest value in legal inquiries; and if he fails to recognize when first summoned to the person dying or injured, such facts and conditions, it will be out of his power later to recall them and to meet many questions which are certain to arise at the trial.

Members of your profession have found it necessary, therefore, to cultivate the faculty of seeing everything, not only of the situation with regard to the patient, but the situation as to the surrounding circumstances and conditions under which the patient is found.

Our professions have had mutual suspicions and jealousies in the past; but that, happily, is ended. Each profession is, in the measure and exercise of its proper functions, necessary, essential and useful to the other. The mutual understanding in recent years has not only removed friction that once existed, but has begotten respect each for the other.

If we are to continue to serve, each must go forward. We must each advance in our own direction. We are, as I said in the beginning, the two great professions, and the time will come in the future, when society will accept us as such; when honor shall no longer be paid to material things; when accumulated wealth shall no longer madden the world or be accepted as the great desideratum. Then the family doctor and the family lawyer shall become again the advisor, counselor and friend of all those whom he serves, an honored relation, once universal, but unhappily, almost unknown in these later years.

LOCAL ANAESTHESIA IN GENERAL SURGERY.*

A. I. McKinnon, M. D., Lincoln, Nebraska.

Ether and chloroform have been the anaesthetics in common use for the past seventy five years. The changes worth noticing are the displacement of chloroform by ether, at least in this country, and the modification of methods of administration. These changes in themselves are so insignificant, and present day methods of anaesthesia vary so little from those in vogue seventy five years ago, that the subject may be dismissed by saying no marked progress has been made since their first employment as surgical anaesthetics. It is not my purpose to detract from general anaesthesia any of the credit due it for its share in the relief of suffering it has made possible, and the great impetus it has been to the development of surgery. On the other hand, ether and chloroform are far from being ideal anaesthetics, having inherent properties which are not only disagreeable, but are likewise dangerous to the health and life of the patient.

The medical profession has not been blind to these objections, and hence the many attempts to find a more satisfactory anaesthetic. This brings me to the subject I wish to discuss, "Local Anaesthesia in General Surgery."

The use of local anaesthesia is not new. Every surgeon has used it in cases where a general anaesthetic was deemed too dangerous. It was not used from choice, but as a necessity. Some progressive surgeons, in different countries, have used local anaesthetics for many years, but their pioneer work was never accepted by the profession as a whole. In my opinion, the reason for this unreceptive attitude of the general profession, is that we are all creatures of habit, and that we do not like to accept innovations. We resent anything that interferes with our customary way of doing things.

Over twenty years ago I noticed a reference to an article by Weller Van Hook of Chicago, on Schleich's method of infiltration anaesthesia. I sent for a reprint of this article. I received this reprint and a letter from the author urging me to use local anaesthesia, expatiating on its merits. I tried it a few times in minor operations, but was not sufficiently impressed by it to use it very extensively. I read articles in medical journals, and listened to papers before medical societies on the subject, but never could see the advantage claimed for it.

It was hard for me to appreciate the fact that local anaesthesia, in a hernia operation for instance, was any better than general anaesthesia. And even now I am unwilling to concede that a local is so much better than a general anaesthetic in hernioplasty that we should all sit up and take notice.

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*Read before the Nebr. State Medical Assn., Omaha, April 26, 1922.

What I mean is this, that in good surgical risks the patient usually gets well in spite of the anaesthetic.

On the other hand, let me call your attention now to the bad risks, the septic and toxic cases. Take a case of acute obstruction of the bowels. Statistics show a mortality of 60-75% in the hands of the best surgeons. Compare these results with those obtained with local anaesthesia and a jejunostomy, where the mortality is practically nil.

Why do we save the majority of these cases? First, because we open the intestine in the right place. Second, we do not interfere with peristalsis. Two things absolutely necessary to favor the patient's recovery, that is, active peristalsis and proper enterostomy. But most important of all, we have not given a general anaesthetic.

It is a well recognized fact that in abdominal section done under ether anaesthesia, peristalsis is inhibited for more than 24 hours. It is only fair to assume that on account of this effect of ether on peristalsis. ether is the contributary cause of death in this type of case. For the inhibition of peristalsis prevents elimination of toxines from the bowel. In addition, ether has toxic qualities of its own. Compare the appearance of a patient under profound ether anaesthesia (cyanosis, leaky skin, shallow respiration, small thready rapid pulse, cold extremities), to the patient in extremis from obstruction of the bowels and you cannot fail to be convinced that ether is a toxic substance. Can we fail, then, to conclude that ether in this type of case is the cause of death?

My results in acute obstruction of the bowels convinced me so thoroughly of the advantage of local anaesthesia instead of general, and doing the minimum amount of surgery, that I applied the same principles in the treatment of general peritonitis from whatever cause. And the results have been equally gratifying.

In the prostate cases, for years I advocated that an operation on the prostate should be done in five or ten minutes. My clinical sense told me that these individuals did not stand prolonged anaesthesia. To my mind the effect of the ether administered from a half hour to one hour was the cause of a high mortality in these cases, and the high mortality was the reason surgeons were afraid to operate. When the two stage operation was recommended, ether was given in broken doses, and did not have such a bad effect on the patient. The operation became more popular. At the present time, when the first stage is done under local, and the second stage under local or spinal anaesthesia, there is practically no mortality.

I could instance many other surgical conditions in which surgery done under a local anaesthetic is comparatively safe and when done under a general anaesthetic carries a very considerable mortality. The inference to be drawn is that, in septic and toxic cases, the use of a local anaesthetic makes the operation a reasonably safe one, whereas in the same class of cases, surgery done under a general anaesthetic has carried an excessively high mortality.

From my own observations, the only logical conclusions to be drawn are, that in septic and toxic surgical cases, the use of local anaesthesia is imperative and the use of ether is contraindicated, dangerous. and slowly but surely becoming obsolete.

If the use of local anaesthesia is safer for the bad surgical risks it is bound to supersede general anaesthesia in other cases:

The success of the surgeon in the use of anaesthesia depends on his temperament, his diagnostic acumen, and his technique. In other words, the surgeon must acquire the art of using the local anaesthetic so skillfully that he does not cause pain, and he must be so confident of his ability to do so, that he can reassure the patient in a convincing manner that the operation will be painless. The technique can only be acquired by actual experience and this should be gained by beginning with simple operations. After a little practice, it is surprising how many operations one can perform with a local anaesthetic, or with the combination of a local and general.

To take up the study of the use of local anaesthesia from an economic point of view, makes an interesting study: In the first place, there is no shock, nausea and vomiting following, the patient can ordinarily take nourishment immediately, his metabolism is practically normal. Consequently wound healing is more rapid and the patient necessarily is not confined to bed so long as after a general anaesthetic. In other words, your hospital capacity is augmented. The correctness of this position should be rapidly conceded.

If you will remember that after a general anaesthetic the patient is nauseated, doesn't take any nourishment for three or four days, loses weight on account of it, and consequently the metabolic processes are a minus quantity for four or five days after the operation, it is logical to assume that an appendicitis patient, for instance, is in as good condition in four or five days to send home, as he is eight or ten days following a general anaesthetic.

REPORT OF FIVE CASES OF SPOROTRICHOSIS.

E. Arthur Watson, M. D., Grand Island, Neb.

To Schenck of Baltimore belongs the credit of discovering and classifying this infection. Whether it is an old condition which before the Wassermann reaction for lues and our present better knowledge of laboratory technique was treated as syphilis or tuberculosis we do not know, but believe it highly probable. There is nothing in the literature I have at hand showing anything before Schenck's article (1898).

Brayton wrote on chronic abscess in 1890 which in all probability was sporotrichosis. Perkins and Hectoen 1900 and DeBeurmann and Ramond in 1913. At present it is an established specific infection. The symptomatology and diagnosis has not as yet been sufficiently impressed on the rural practitioner so he can add this to his routine working knowledge and he is the one who should be capable of recognizing it as he is invariably the first to see it. The infection prevails in certain communities as mapped out by Sutton. This may be due to the discovery of the cause of one case and the diagnosis of others which otherwise would have been unclassified. My five cases all came from one territory within a radius of twenty miles and are the patrons of the town of Greeley Center. Greeley Co., Neb.

Symptoms: In case No. 1 there is a history of primary injury. In No. 2 there was a probable slight injury. In No. 3 there is no history of injury or possible entry for the infection. The five cases are of the upper extremity.

Stelwagon states that in by far the larger number, the point of entry is unknown. The initial lesion begins as a small superficial abscess with a gradual thinning of the overlying skin, this breaks down and discharges a thick grayish mucoid pus, leaving underneath a scooped out ulcer with a red granular base. When you find one at this stage you will usually be able to palpate another higher up, in my cases about one inch intervened. Case No. 2 was in the preulcerative stage and followed parallel with the lymph vessels. A number of nodules about ¾ to 1 cm. in diameter were found, which felt as though they lay in the subcutaneous tissue, but which were always adherent to, and a part of the deep layer of the skin. Case No. 3 suffered her primary lesion in the axillary glands with no history of possible point of entry.

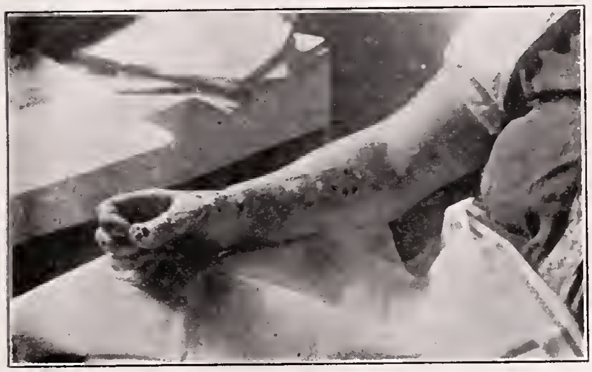
There are no febrile symptoms to guide one and they complain of no pain or marked tenderness in the lesions. They could easily be mistaken for syphiloids and undoubtedly are in a great many cases. It could very easily be confused with a tubercular lesion as they resemble very closely tuberculosis of the skin.

Lesions of the mucous membranes have also been noted by De Beurmann and Gougerot, Brodier and Gaston and Letulle. I have not succeeded in finding one nor finding it complicating the membranes. Gifford of Omaha reported several cases of infection of the mucous membrane of the eye.

Diagnosis: Small painless nodules in the skin, the distal nodules breaking down into well circumscribed, painless ulcers, with no induration or redness surrounding, those proximal not broken down, showing much thinning of the overlying skin and a thicker more firm overlying skin as they extend proximal, and the lesions following parallel with the lymphatic vessels.

Treatment: Case No. 1 was treated entirely surgically. The lesions were freely opened and some of those higher up entirely excised, a dressing of diluted Lugol's solution was applied and each day the dressings removed and the arm exposed to direct sunlight for one hour. Case No. 2 was treated the the same with the exception that potassium iodide was given internally. Cases No. 3 and 4 we treated surgically followed by potassium iodide. Case No. 5 was so young, a simple drainage was done only and potassium iodide in increasing doses was given. The last report on this case was most satisfactory.

March 18, 1918. Mrs. R., age 43. Occupation: Housewife. Nationality: Irish. Her past history is negative with the exception of childhood diseases. Physical examination negative. History of present trouble: Last November the 4th, ran a thorn under nail of thumb of right hand. On November 15th thorn was removed, having been poulticed during this interval. Thanksgiving she noticed a small and reddened lump on flexor surface of right wrist, and another a short distance above this. These were opened and pus evacuated. Others appeared later always following a straight line up the flexor surface of forearm. The accompanying photograph will show the extent of involvement on March 18, 1918 or four and one half months after the initial lesion. The arm was incised from the highest abscess to the tip of thumb and entire surface curetted with a sharp curette. The wound was left open and dressed with Lugol's solution and each day was uncovered and exposed to the sunlight for one hour. The diagnosis of this case was clinical and no smears were made but from descriptions in the literature was classical. Recovery was rapid and complete.



C. T., age 9. F. H. negative. Past history negative. Five weeks previous to my seeing him, he had a slight infection on the flexor surface of the wrist. This was slow to heal, in fact did not heal but granulated, later following up the course of the lymphatic vessels. Nodules began to appear; these did not break down but extended up to the middle third of the upper arm. On opening them grayish pus was evacuated from all. They lay about one half inch apart and definite burrows could be demonstrated with the probe leading from one abscess to the other. They were curetted and dressed with Lugol's solution and exposed to the sun. No potassium iodide was given internally in this case. Recovery was rapid and at present complete.

Oct. 1921. Miss N. G. Female. Age 25. Nationality, Irish. Past History. Had chronic nephritis, to my knowledge for past eight years. Infected tonsils removed several years ago. Otherwise negative.

History of present trouble: She states that last March she noticed a swelling under her left arm which soon became painful. She consulted a physician who opened this and evacuated clear pus. Following this at a comparatively short interval it again filled and another physician evacuated it. Again it filled and a third physician opened and drained it. This physician kept her under observation for some time and in all drained the axilla twice, but again it filled after which she entered a hospital in a town close by and during the period between Sept. 25th to Oct. 29th, had this area operated upon two different times. When again operation was suggested and partly on account of a small lump appearing in the right axilla she decided to change again and came under my service Oct. 29, 1921. At this time she had an open discharging axilla. The pus showed nothing specific (diphtheroid and pyogenous). There was no free pus on the right side. A radical operation was decided upon and on Nov. 2, 1921 the left, or old infected axilla was opened and an abundance of cicatricial fat and tissue found closely adherent to the large vessels of the axilla. It was found that none of the deep gland bearing tissue had been removed and that an infected area extended upward between the two pectoral muscles. The pectoralis major was severed about one half and retracted upward and the subclavicular space exposed and cleaned out, this area also being involved. On account of the past history and my past experience with patients from this same territory, the wound was left entirely opened and dressed with Lugol's solution.

Improvement was very rapid and all discharge ceased at once and at this date is granulating nicely and more than half closed. On Nov. 12th the right axilla showed redness with tenderness. Nov. 16th this side was opened and free pus found in the initial gland. This was the first free pus of the original culture obtained and showed unmistakeable spores. All the gland bearing tissue of this side was removed as well as the subclaviculars. The wound was left open and dressed with Lugol's solution. Potassium iodide was given internally. At discharge the wounds were still open but granulating freely and no pyogenic bacteria present.

Dec. 12, 1922. A. S. Age 12. School boy. Family history is negative. Past history: Scarlet fever eleven years ago. Pneumonia eleven years ago. Some tonsillitis. Two years ago was accidently shot in the foot with a small caliber rifle, no injurious effect. Present history: Complained of some frontal headache and a slight cough. Occasionally nausea and vomiting, which was undoubtly due to errors in diet. Physical examination showed the boy well nourished and well developed for his years. His color was sallow. The eye reflexes were negative. Teeth were negative. The right tonsil was infected. Six weeks ago had infection on last phalanx of first finger of left hand dorsal surface. Finger healed and then noticed swelling under left arm in the axilla.

The urinalysis was negative. His white blood cells were 9,600. Haemoglobin 80%. There was a well defined palpable mass in the left axilla. Old scar still red on first finger. There was no redness over this mass and very little tenderness. He carried no temperature and as the white cell count would indicate there was no general infection.

We advised hospital care and on Dec. 13th under general anesthetic the axilla was opened and a specimen of the pus procured and immediately examined. Spores were found. A complete resection of the gland bearing tissue of the axilla was performed and through a small stab wound, just below the lower border of the latissimus dorsi muscle posteriorly, and the incision anteriorly, a tube was passed with opening in the center and each end protruding. We irrigated through this tube with Lugol's solution three different times.

The patient was put on potassium iodide in increasing doses and the recovery was very rapid and complete, in fact the most rapid of any of the series.

Baby D. Age 16 months. Family history negative. Past history negative. Present history: Two months ago had a small abrasion of hand. This healed nicely. One week previous to my seeing her, her parents noticed a swelling under the left arm in the axilla. This progressed rapidly with some malaise and they think she had some temperature. There was very little fluctuation and no redness. We opened the mass and evacuated the characteristic gray pus in abundance. On this baby we did not do a radical dissection but will keep her saturated with potassium iodide for at least six months.

SUMMARY.

Such cases should be reported through our medical publications when diagnosed. There is no doubt there are many who are fortunate enough to enjoy unassisted recoveries, and others who are lost to society by the ignorance of the physician. This infection thrives in certain localities and when a vicinity is found the medical men should be warned, also the public if this is possible. We might go further and report all cases to our State Boards of Health. This spore survives on vegetable matter, hence most of the cases reported and my own five cases came from the rural districts. Should you see a case of a well nourished individual, male or female, adult or child, with a negative history for lues or tuberculosis, with superficial abscesses of the extremities following a straight line with the lymph vessels or enlarged glands which undergo suppuration and contain a gray mucoid pus, and they are farmers; procure a culture if possible. If you haven't laboratory facilities close enough to permit of a positive diagnosis, put your patient on increasing doses of potassium iodide and after opening the abscesses, dress the ulcers with Lugol's solution, the base of which is potassium iodide. If these cases when found are published and in this way are kept before the profession, there is no doubt that many more will be found and the possibility of spreading to other localities much lessened.

PURPURA FULMINANS COMPLICATING SCARLET FEVER.*

N. T. Johnston, M. D., Upland, Neb.

The Journal of The American Medical Association of January 21st, 1922 published an article by Drs. McConnell and Weaver of Cleveland, entitled. "Purpura Fulminans During Convalescense from Scarlet Fever." In this article it is stated that, "in a review of the literature of the last twenty years, reports of about fifty cases of purpura hemorrhagica and of purpura fulminans associated with scarlet fever have been found. Of these fifty cases probably less than half have been of the fulminating type." The authors further state, "concerning purpura in the course of scarlet fever, Croker mentions the occurrence but gives no references. Osler refers to purpura fulminans and says: 'In this very rare variety, ecchymoses extend with startling rapidity, and within a few hours an extremity or the greater part of the trunk may assume a blue or reddish black color. This disease usually ends fatally in from eighteen to forty eight hours, and no patient has recovered.' "

In view of the rarity of this complication in scarlet fever, I feel that a report should be made of a case, which occurred at Campbell, Nebraska, in November 1921. I saw this case in consultation with Dr. Merewether of Campbell, who was in charge of it.

Mrs. L. K., age 21, gave birth to a healthy child Oct. 1st, 1921. This was her first child. Labor was normal. History in the case was practically negative. Patient weighed about 140 and was 5 ft. 5 in. tall. On November 18th, she called Dr. Merewether on account of a mild case of sore throat. She improved. On November 22nd she called him again on account of a recurrence of the sore throat. She was not confined to bed and apparently was not very ill. On November 24th, she was well and enjoyed a Thanksgiving dinner. On the morning of November 25th Dr. Merewether was again called. Patient had become suddenly ill in the night. I was called in consultation a few minutes after Dr. Merewether saw her. She was apparently in a state of collapse. Radial pulse could not be felt. Extremities were cold. Heart beats about 165. Rectal temperature 103.6°, breathing difficult. A typical scarlet fever rash was present on the upper chest. It had not been noticed before. All over the rest of the trunk, arms and legs was a bluish and black rash. The tongue was very red at the tip. The pharynx and palate were red and swollen. There were grayish patches on both tonsils, but no membrane. Articulation was difficult and mentality was dull. There was some swelling of hands and feet. No albuminuria. No culture was made but two doses of antidiphtheritic serum were administered. Stimulants were given and in a few hours the patient rallied. On November 26th, temperature in the morning was 101° by rectum, pulse 110. Rash slowly faded away. On this date two little children in the house developed scarlet fever.

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*Read before the Nebraska State Medical Assn., Omaha, April 25, 1922.

The patient improved slowly but steadily until the evening of November 28th, when the temperature was down to 99° and the pulse 90. From this time on she failed rapidly. She complained of great pain in both feet and legs. The left leg rapidly became dark in color up to the knee. On the morning of November 29th, the right leg began to swell and in a few hours was ecchymotic to the knee. The temperature rapidly rose to 106° by rectum. The abdomen became greatly distended and internal hemorrhage was suspected. Patient went into coma and died early in the morning of November 30th. The purpuric rash over the rest of the body had almost disappeared when the legs turned black. Pain was so intense that morphine had to be given before she became comatose. There was no hematuria, no hematemesis, no bloody stools, no discharge from vagina. No necropsy was held. The two children in the house had mild cases of scarlet fever which ran uneventful courses and recovered.

DISCUSSION.

H. M. McClanahan, M. D., Omaha: This is a valuable paper and remarkable for its brevity.

I think we know that puerperal women are more susceptible to scarlet fever than any other infection, and it seems to develop in them a lack of resistance. From the fact two younger children developed scarlet fever, it is evident it was scarlet fever; otherwise there would be some question as to the nature of it. We know the organism of scarlet fever acts with other malignant germs. Those of you who do obstetrics know a woman in puerpera is more susceptible to scarlet fever. Scarlet fever rarely occurs in an adult.

Purpura fulminans is an evidence of some powerful organism there. If it had occurred during an epidemic of grippe, we might have thought it due to a specific organism such as was seen during the war.

This case is exceedingly important.

J. R. Leibee, M. D., Polk: We had at Polk one of the most severe scarlet fever epidemics in the state. We were quarantined from Christmas to the last of March. Most were ordinary scarlet fever cases. I had one in particular that has somewhat of a bearing on the paper. It was in a boy of three years old who ran a typical case of scarlet fever. His temperature reached normal on the fifth day, and he was apparently doing as well as any scarlet fever case could. The rash had entirely disappeared.

On the ninth day I was called to see the child. He was broken out as before with large, almost solid, red patches over the backs of the hands, posterior surface of the arms, anterior surface of the thighs, and posterior surface of the legs. The temperature would run high in the morning, and these areas—from the size of a dollar to that of a man's hand—would be glowing red. As the temperature subsided, they would pale. The case went along. The temperature would run high in the morning and low in the afternoon. In a few days the youngster developed a rhinitis and double otitis media. After the rupture of the membrane of both ears, the temperature dropped to normal, and the child started desquamating, although the red patches on legs and hands still persisted. After he was almost through desquamating, the patches gradually disappeared; the temperature went to normal, and the child recovered.

I do not know that this is a case identical with the doctor's. It was unusual with me. I never saw or heard of one exactly like it.

William Berry, M. D., Omaha: These cases coming in the practice of the general practitioner are a great bugbear. We do not get a great many in our Society meetings, and are in many cases unable to make pathological findings.

Several years ago I had one or two cases come to my attention, one in a family of a poor man in our town. Dr. McClanahan spoke of the inability of resistance to infection. This man got into the hands of some rough necks and was beaten up. He took to bed with a number of spots on his body of an ecchymotic type, and with a very severe sore throat and decided swelling of the glands of the neck. I was at a loss to know what was the matter with the man. Because of the slight membrane on his throat, I administered diphtherita antitoxin. Where we are in doubt in scarlet fever, it will do no harm. It gives relief from the infection if diphtheria is present. What good it does we do not know; it is not of permanent good. I gave this fellow this antitoxin. He got better, but the spots kept forming on different parts of his body. He finally died.

About that time, Dr. Hektoen of Chicago was doing some research work in finding the causation of scarlet fever. He recorded it in one article as some of the family of streptococci. In a day or two a little boy in this family developed a typical case of scarlet fever, with decided angina and lymphatic involvement of the neck, and he died. My diagnosis was made. Could this man have had scarlet fever in his blood before he got this beating?

The point I want to emphasize is this: We meet with cases, even in the city, that go to the undertaker so quickly, and we are refused an autopsy and can not make a pathological investigation, that we are at a loss to know. These cases in which we have infection from streptococci or infection from scarlet fever are very virulent. The patients usually die. This case of Dr. Johnston's no doubt was infected with scarlet fever. She lost her life as was attested by the clinical findings in her family.

A. B. Somers, M. D., Omaha: A question arises in my mind in regard to this case. A good many years ago we had very much more malignant types of all the infectious diseases than now. If diphtheria entered a house with eight or ten persons, two thirds of them would have diphtheria, and 40 per cent would die. We had what was known as "black" measles and scarlet fever and those things—of exceedingly malignant types. You would find these discolorations, and the patients would die. The question that came in my mind was this: After he gave this patient diphtheritic antitoxin, the conditions improved for a few days. Now diphthera antitoxin is a blood serum. I know what blood serum will do in the purpura of the newborn child. If used promptly, it will save lives. If not used, they will practically all die. The question arises in my mind if large doses of blood serum had been used very promptly in these cases, what might have been the result? This is not a criticism of Dr. Johnston.

I. H. Dillon, M. D., Lincoln: We have witnessed the past winter all over this state, as well as all over the United States, more scarlet fever than the United States has ever seen in the same period of time. The same thing is true of diphtheria. Most of these cases have been mild. But in practically every community in this state where any very great amount of scarlet fever has developed, there have been a few very severe cases—cases that might be compared to the hemorrhagic type. Why it is I do not know. We have not seen as many of them for a good many years. Whether it means anything for the immediate future, only time will tell.

The same thing is true of smallpox. As you know, in some localities in the United States it has been of the hemorrhagic variety, and one-third of the cases die; but in the majority of the localities, it has been of the variety we have seen for the last twenty five years, which is mild. So that I am wondering if in a year or so we may see a great many more of these severe types of scarlet fever and diphtheria and smallpox as well?

Dr. Johnston: There is some reason, I believe, for doubting whether this was a case of purpura fulminans. Perhaps I did not make it clear enough in the paper. A few things have been brought out in the discussion, and I will go more into detail.

This patient had a perfectly normal puerperium. The baby was born five weeks before she was taken sick. Two or three weeks previously, there were cases of scarlet fever in the house next door. She moved to Campbell and there was no scarlet fever in Campbell. Twenty four hours after we noticed the rash, two children in the same house suddenly came down with typical scarlet fever, and there was no doubt that they had scarlet fever.

Now in regard to the spots: One doctor mentioned his patient had reddish spots. These spots could not be described as reddish. They were of a very intense dark blue. The first appearance of the typical scarlet rash was on the chest. The rest of the body was slightly hemorrhagic. I thought at once of the old form of black scarlet fever. I never even thought of purpura fulminans. This hemorrhagic appearance over the body practically disappeared before the real purpura started. When it developed, they were not spots, but patches. The patches on the legs were solid and dark blue with an area of at least twelve or fifteen square inches. On the left leg part of it receded and started up on the other.

Dr. Dillon mentioned the prevalence of mild scarlet fever and a few cases very severe. I think perhaps in this case, and perhaps in all of the bad cases ever since we had the epidemic of flu, in which I found a lot of streptococcus hemolyticus, these germs may have been there. The fact that she had given birth to a child may have put her in a condition of low resistance.

I only regret photographs had not been taken of the case. After it was too late, I thought of them.

A case was illustrated in the Journal of the American Medical Association. Two of the patches on the limbs of the little girl were very much like the spots on this woman's legs. In this week's issue of the Journal of the A. M. A., there is another case of purpura fulminans reported from Kansas City.

THE VALUE OF SALIGENIN, A NEW NON-TOXIC LOCAL ANESTHETIC, IN CYSTOSCOPIC EXAMINATIONS.

Arthur L. Smith, A. B., M. D., Lincoln, Neb.

Dr. A. D. Hirschfelder(1), in his work in the pharmacology department of the University of Minnesota, has succeeded in elaborating a new local anesthetic which he calls saligenin (the trade name is salicaine).

"Saligenin is the alcohol corresponding to salicylic acid and is oxidized to salicylic acid in the body. It is formed in nature by the splitting up of the glucoside salicin by the enzyme emulsion and can be prepared synthetically in various ways. It is water soluble up to ten per cent and is from five to ten times less toxic than procaine and twenty five to fifty times less toxic than cocaine. Judging from the results on the dog and cat, a man could tolerate 700 to 1500 mils of a four per cent solution intravenously or about one half gallon subcutaneously."

I have been using saligenin as a local anesthetic routinely in cystoscopic examinations during the past 15 months and wish now to report the results obtained.

The cystoscopes used are the Buerger indirect ureteral catheterizing concave and convex and the operating cystoscope of the same type.

On account of the danger of local anesthetics in the urethra I was pleased to have the opportunity of trying this new local anesthetic in the genitourinary tract.

In the beginning salicaine was used in combination with cocaine but in 419 examinations and treatments of the genitourinary tract only salicaine was employed as an anesthetic. Of these examinations 136 were in the male and 283 in the female. In the 136 male injections, it was apparently satisfactory in 118 and in 18 it did not seem to have much anesthetic value. In the 283 female injections of the urethra it was apparently satisfactory in 197 and in 86 it was not satisfactory. These latter failures can probably be charged to the relaxation of the urethra at the external meatus. It has been injected into irritable bladders 81 times with relief in 62 cases.

In the removal or attempted removal of ureteral stones, by means of a Lewis dilator, catheters or incising instruments, satisfactory anesthesia was accomplished in 26 cases. In the dilatation of strictures of the ureter with metal dilators or bougies it gave satisfactory anesthetic results 32 times. A four per cent solution of salicaine was always used.

It is rather a common occurrence for a toxic effect to follow the injection of cocaine or novocaine into the urogenital tract. In my experience in cystoscopic examinations no toxic symptoms were observed after the use of a four per cent solution of salicaine.

My thanks are due to my colleague, Dr. J. M. Mayhew for his advice and hearty cooperation.

1. Minnesota Medicine, June, 1921.

NEBRASKA DOCTORS IN LOS ANGELES.

Editor, Nebraska State Medical Journal:

Hoping, though not necessarily believing, that a few rambling items from one of "the olduns" from away out here may at the worst help to fill space in the Journal, I am seated at my typewriter.

Your last, June, and very interesting number came to hand in due time. I have read it all and it calls to mind many well-remembered incidents of the days of "long ago" when neither the State Society nor its then official organ, The Omaha Clinic, both good and useful for the time, were what they are today.

But this is not what I had in mind when I decided upon this communication.

As of course you know, the writer of these vaporings is now located in "sunny California"; and although many miles intervene, he does not at all feel that he has severed all of his home ties and cast his lot among strangers; for in addition to the monthly visits of The Journal and occasionl letters from some of the fellows back there, there is quite a contingent of the medical profession of Nebraska represented here. I have not had the pleasure of meeting all of the members whose names I shall mention and I am quite sure there are many others whose names and locations I have not yet learned.

First and foremost in the list is one who has long been known to the profession of Nebraska in general and Omaha and the State Association in particular is our old friend and nestor of medical education in Nebraska, Dr. D. C. Bryant who has offices in the Broadway Central Building, 424 S. Broadway. It is an inspiration to see him in his work. Enthusiastic, energetic, kind and sympathetic as we knew him a third of a century ago. He has associated with him Dr. G. L. Blanchard, also from Omaha, but one of "the boys" too young for me to know in Nebraska. It is needless to say that they have a nice business.

Dr. Hugo Chaloupka, a graduate of Creighton with offices just next door to Drs. Bryant and Blanchard, is an agreeable and interesting young man and a progressive surgeon and although a new man here he has made a good start in his line of work.

Dr. W. B. Kern who has offices in the Brockman Building, 7th and Olive Sts., needs no introduction to the physicians of Nebraska in general, and of Wood River, Hastings and Grand Island in particular. He has an interesting and remunerative practice in his chosen specialty, mental diseases, and has been here since "before the war."

Dr. J. T. Miller, one of the old Society boys whose Nebraska home was Holdrege, pulled my latchstring one day last week and we had a good, undisturbed visit reminiscing (I guess that is the proper word) old times; among other incidents we recalled having done the Trans-Mississippi Exposition together one night. He has an office at 1207½ W. Washington St. and the world has used him well since locating here, some eighteen years ago.

Dr. W. O. Henry also called at my office a few days ago and aside from being a little whiter, dome and whiskers, he is the same "W. O." that used to take an active interest in the medical meetings of Nebraska. He has office and residence at 1739 W. Adams and as a matter of course the only "baby boy" in L. A.

Dr. George Roeder, father of "our own" Clyde A. of Omaha, is located in the Brockman building; has been here but a few years but has a nice business.

Dr. B. B. Baldwin and Dr. W. H. Slabaugh, both Nebraskans, I have not had the pleasure of meeting but am reliably informed they are in active practice here. Dr. Ewing Brown and Dr. J. C. Moore are here though not in practice. The former is sojourning in San Pedro in the interest of his health, presumably, but perhaps indulges in golf and piscatorial pastimes as side-lines. I met Dr. Moore some two months ago and as near as I could ascertain he was here just for the fun of the thing and had but a vague idea as to just when he would pry himself loose and return to the city on the west bank of the "big muddy."

The two Drs. Gafford, brothers of Dr. C. C., the "sweet singer" of southern Nebraska, are located in Huntington Park, a beautiful and rapidly growing suburb of L. A. and I am told they have a prosperous business. I had the pleasure of renewing the acquaintance of Dr. C. C. at the Nebraska picnic, an annual event held in Sycamore Grove in the month of March.

Dr. Leo Heller, not an M. D. but a D. D. S. was born in Wisner, Nebraska, thirty-five years ago. I know this to be a fact for I was right there. He has a thriving business in his line; but perhaps this is sufficient for this time at least, so will bring it to a close. Before closing, however, let me observe that there was one item in the June number of the Journal that is a source of much consolation to the undersigned, viz., the advice that the late Dr. J. N. McCormack gave to members of the county medical societies, which makes it plain as day why I was never made president of our State Association.

With Best Wishes I am, Fraternally

J. Lue Sutherland.

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FORTY YEARS OF MEDICINE.

Physicians who have practiced the healing art for two score years or more are not so numerous. Those who have done so need not be told of the great changes that have taken place in medical schools, medical education, and of the advancement in medical science. A retrospective glance will be of interest to them as the historic facts must be to the younger members of the profession.

It has been asserted that greater progress has been made in medicine in forty years than had been made theretofore in a century and the facts bear out the assertion.

It is almost unbelieveable that men still in active practice obtained their medical education under conditions so entirely at variance with those of the present. In the early eighties of the last century the curriculum of the medical department of a well known western university consisted of two years of twenty weeks each (with an elective third year) in which time was taught a smattering of anatomy by lectures and by dissecting one part of a cadaver each of two years; of lectures on physiology interspersed with a few demonstrations on frogs and dogs; of a series of lectures and some very simple laboratory work in chemistry; of very practical lectures on materia medica, medicine, the eye and ear; the principles of surgery and the principles of obstetrics.

The medical and eye and ear clinics were good and varied enough. There was no superabundance of material, but the material was used to good advantage. In two years there was but one patient in the gynecological clinic and the case was diagnosed as uterine hyperplasia and was treated by local applications of Tr. Iodine, Glycerin and Carbolic acid. Obstetric cases most students saw none while in school. A lot of practical information was pounded into the heads of students however, by the aid of demonstrations on the obstetric mannikin, so that when later the erstwhile medical student, developed into a fledgling doctor, came against a case of real trouble requiring instrumental delivery, he was able to introduce the forceps right side up. Students of a later day have done worse. The surgical clinics by the most famous surgeon west of Chicago were given once a week. Those were the transition days and everybody was not yet converted to the Listerian theory. Laudable pus was preached and oakum (ship caulking oakum) was the standard surgical dressing and absorbent material.

A few of the schools in the larger cities had begun to develop laboratories and some had an obstetric service. Other schools had even less in the curriculum. What is above outlined was probably a fair average of the medical teaching of that day.

Flint's, Watson's and Reynolds' works on practice and Gross' and Ashhurst's works on surgery were the standard books of the period. What a revelation it was to the young doctors when Pepper's System of Medicine and the American Text Book series appeared, for a new era in medicine was dawning.

Within the decade represented by the eighties antiseptic and aseptic surgery became firmly rooted in medicine. In 1883 the fungus of actinomycosis was described by Bottinger and demonstrated by Law in this country. In 1885 Pasteur began inoculations to prevent hydrophobia in the human subject. In 1887 Koch announced the discovery of the bacillus of tuberculosis. In 1883 Klebs described and in 1884 Loeffler cultivated the Klebs-Loeffler bacillus and following this in 1893 Behring used antitoxin on diphtheria patients.

Surgery of the appendix dates from about 1890 and coincident with or closely following this modern surgery of the other intra-abdominal organs was developed.

Time and space forbid prolixity. Suffice it to say that bacteriology with all that relates to it—antisepsis, asepsis, serum therapy, etc., is the development of forty years.

At a recent class day during the President's reception the writer said to the host: "We date back to the time when it took but forty weeks to make a doctor." To which the host retorted: "And they made some pretty good ones." The writer was impelled to say in conclusion—"We admit it!"

DR. EMERSON'S NUTRITION INSTITUTE IN LINCOLN.

The generous financial contributions from the Lincoln Board of Education, The Chamber of Commerce, the Junior League, the Tuberculosis Association, the Lancaster Medical, the Dental, the Teachers and Nurses Associations, etc., which made it possible to bring a Dr. Emerson Nutrition Institute to Lincoln from June 19th to July 1st, gave evidence of the fact that Lincoln's child health program is in line with the large centers of the country. She recognizes that there is no waste so irretrievable as that of a community which is careless of the health of its children.

No less significant is the fact that ninety-six (96) live wire health leaders from Lincoln, out in the state, Kansas and South Dakota registered for the course. Of this number there were 12 doctors, 1 superintendent of schools, 5 principals, 9 supervisors and directors, 36 teachers, 22 public health, school health and tuberculosis nurses, dietitians and social welfare workers. Dr. Emerson, before leaving the city, said, "I don't know but that the Lincoln group of students is the best group I have ever worked with."

The Institute was under the personal direction of Dr. Wm. R. P. Emerson, Professor of Pediatrics, Tufts Medical School, Director Nutrition Clinics and Classes in the Children's Department. Massachusetts General Hospital, Berkeley Infirmary, and the Boston Association for the Relief and Control of Tuberculosis. President of the National Sosiety of Nutrition Clinics for Children. He was assisted by Miss Mabel Skilton, his chief clinical director, and Miss Janette Gayley, an advanced worker.

The Institute course included the organization of five model nutrition clinics for underweight children, lectures, class instruction and practical work.

Some of the topics taken up were:

1. The organization and conduct of nutrition clinics and classes.
2. Identification of the malnourished child.
3. Physical, mental and social examinations and history record.
4. Proper use of materials, as charts, tables, forms, blanks, graphs, slide rule, etc.
5. Diet, health habits, over-fatigue, posture, underweight, overweight.
6. Physical defects: "No defect considered in isolation."
7. When is the child, "Free to gain?"

The children of the five clinics were chosen from five different social groups in the city. One from St. Thomas Orphanage, one from the Prescott School district, (the best residential district in the city), one from the McKinley School district, another from the Park School district, (children of foreign parentage), and the fifth group from children attending a summer bible school. All the children were seven or more per cent underweight. There were 15 to 20 children in each clinical group.

These model clinics will continue to hold weekly sessions until August the fifth in order that a demonstration may be made of improved health conditions in the clinic children, as a result of 6 weeks nutritional health work.

Dr. Emerson taught, in these classes, his method of making a physical growth examination of underweight children and how he brought the four following expert forces and interests together into a thoroughly cooperative spirit:

1. The medical and dental interests.
2. The home.
3. The school and other social organizations.
4. The child's own interest.

Dr. Emerson's class method proved itself every step of the way. It was simple and yet so convincing that it gained the cooperation of even the most ignorant or most negligent parent.

The chief causes for underweight in children outlined by Dr. Emerson are:

1. Physical defects.
2. Lack of home control.
3. Over fatigue.
4. Improper food or improper food habits.
5. Improper health habits.

One feature of the general class program is that all the children are directed to take mid-forenoon and mid-afternoon rest periods and lunches. Many children are found to lack appetites because of over fatigue.

The fact that all human living forces tend toward health is continually demonstrated in this malnutrition work. When extra rest is taken and more food assimilated and when the causes for underweight are found and removed, the rebound toward increased weight and health in the children is almost immediate.

A little brother and sister, who were 13 and 21 per cent underweight respectively and were free to gain, gained 1¾ pounds each in a week, after taking their rest periods and extra lunches. The next week they made no gain, in spite of the fact that they had taken their rest periods and lunches. After the class meeting the mother of the children confided in confidence to the physician in charge of the clinic, "We sell candy in our store and the first week I watched those children that they got no candy, this last week they got the candy again, which upset their stomachs and they had no appetite for other food."

Each nutrition clinic has a physician attached to it. He makes the physical growth examination of each child. The children are examined undressed in the presence of their parents.

Dr. Emerson stated that 60 per cent of underweight children suffer from nasal obstruction or diseased tonsils. This statement is being verified in the Lincoln nutrition clinics at the present time.

Underweight children in the clinical groups who have put given general directions into effect and do not make the expected gain in weight, receive a more complete physical examination. These examinations frequently reveal hidden cases of tuberculosis, hereditary syphilis, pyelitis, sinus and teeth infections, intestinal parasites, chronic appendicitis, anaphylaxis, etc., which had interfered with their upbuilding. When these children receive treatment for these hidden causes for underweight and they carry out the general nutritional recommendations, they immediately begin a steady gain in weight.

The facts that more than one-third of our drafted soldiers in the world war were physically unfit to serve their country and that more than 5,000,000 school children in the United States are underweight (not counting pre-school underweight children) are so startling, that the medical profession as individuals and as a whole cannot ignore them.

Dr. Emerson's method of restoring these human weaklings to full weight healthy specimens proves itself step by step as revealed by scales, weight charts and the appearance of the children themselves. His class method of treatment has been and is being planted in school systems, in large centres, throughout the country. All causes for underweight except physical defects, are removed through education. The school has naturally assumed this responsibility which combines compulsory health with compulsory education.

A very large number of parents of underweight children seek their family physician or family specialist for help. The specialist who simply corrects physical defects or the physician who sends his patient from his office with a prescription for tablets or a bottle of "tonic", without having an understanding of other common causes for underweight, is indeed giving them a stone for bread. Complaints from parents against such physicians for their failure to help their weak underweight children are a frequent occurrence in a school physician's office.

Parents today are demanding broad practical medical service. Some of our best medical colleges today are providing training for this service in combination with their scientific medical courses.

Katharine H. K. Wolfe.

NEUROPSYCHIATRIC PROBLEMS WITH DISABLED VETERANS.

As every one knows there has grown out of the late war thousands of disabling conditions acting to impair in greater or lesser degree the economic efficiency and independence of ex-service men. To minister to their need there has been created by the Federal Government the United States Veterans' Bureau with its fourteen district offices, each embracing certain states of the Union. The functions of the U. S. Veterans' Bureau are mainly three: first, to provide adequate medical care and treatment for the disabled ex-service man; second, to afford them, where eligible and feasible, vocational training leading to their industrial rehabilitation; and, third, to adequately compensate in money those for whom treatment has not resulted in recovery and where the disability is such that vocational training is not feasible. As will be seen the U. S. V. B. has been given the responsibility towards the disabled ex-service man which was formerly divided between the U. S. Public Health Service, the Bureau of War Risk Insurance and the Federal Board for Vocational Education. To discharge this enormous responsibility a large organization has to be built up, each district being practically in charge of its own problems, working in decentralized manner from the Central Office in Washington. This organization includes clinics, and hospitals with their social service allies, special schools and supervision of universities and colleges wherein training is carried on. Our state comes within the territory known as the 9th District, including Missouri, Kansas, Iowa and Nebraska. The district headquarters with Mr. M. E. Head as District Manager, are located at 6801 Delmar Boulevard, St. Louis. There are fourteen sub-district offices located at St. Louis, Kansas City, Springfield, Poplar Bluff, and Chillicothe, Missouri; Wichita, Salina and Topeka, Kansas; Des Moines, Cedar Rapids, Waterloo and Fort Dodge, Iowa. At St. Louis and Kansas City (Mo.), Colfax and Knoxville (Iowa), are large hospitals; and at St. Louis, Kansas City, Omaha and Des Moines large out patient clinics. Any one of these branches will gladly supply information concerning the Bureau's purposes and work as will the District Manager to any interested persons.

As will be seen by the foregoing brief setting forth of the Bureau machinery, the work deals with disabilities resulting from injury or disease and is therefore fundamentally medical. It has been noted with some alarm that a large portion, fully one-third, of all disabilities are of nervous or mental type,—neuropsychiatric. The alarm and concern arises from the difficulty inherent in the handling of men with disorders of the nervous system functions. To accomplish things it is primarily essential that there be a personnel of adequately trained neuropsychiatrists and it has been brought to the editor's attention that the Bureau experiences considerable difficulty in obtaining the services of such men. From time to time there are opportunities open in the neuropsychiatric section of the Bureau for men with the proper training to work as special examiners or on a part or full time basis. The work itself is of vast interest,opening up as it does a practically untried field in the application of neuropsychiatry to the solution of industrial vocational and economic problems. Neuropsychiatrists are particularly desired at this time and any with the training are requested if interested to communicate directly with the District Manager, Mr. M. E. Head, 6801 Delmar Boulevard, St. Louis, for further information.

KNIGHTHOOD FOR A "MANIPULATIVE SURGEON."

Among the recipients of "birthday honours" recently conferred by King George V., was Herbert Atkinson Barker.

The knighting of this "specialist in manipulative surgery" or "bonesetter," to use the ancient and more significant appelation, comes as a result of "a memorial signed by a field marshal and nine generals, among others, presented to the prime minister, asking him to recognize Mr. Barker's services during the war."

The attitude of the medical profession in England on this question may be well summarized. No recognition of bonesetters as qualified, either by special gift (which is always alleged) or by training to treat skeletal or kindred lesions, has ever been given. Fair and impartial investigation has been made and reasoned judgment passed on the claims of the cult, among whose ranks was to be found, before he received his medical degree, a man to whom the development of modern orthopedics owes much. A prominent English orthopedist told the writer recently that he himself submitted "incog" to treatment at the hands of a prominent bonesetter of London for an imaginary hip joint disability, and it appears "bonesetting" and "adjusting vertebrae" are about on a parity as to both science and art involved.

Many years ago a member of the English profession was dropped from the Medical Registry because he administered anaesthesia for one of Sir Herbert's "manipulations." At the beginning of the late war the latter's partisans in parliament demanded he be given "carte blanche" in the treatment of wounded soldiers. Two years ago the profession was successful in preventing him being given an honorary medical degree.

—J. W. D.

THE THIRD POSTGRADUATE COURSE, COLLEGE OF MEDICINE.

The third postgraduate course of the Nebraska University College of Medicine, given June 19-30 inclusive, was highly appreciated by all the men attending. Some of them have attended courses in Chicago, New York and Philadelphia and pronounce this decidedly the best. The following physicians were in attendance:

Dr. G. W. Clark, Bertrand; Dr. J. E. Davis, Albion; Dr. G. B. Desparois, Pierce; Dr. E. B. Hanna, York; Dr. S. O. Harris, Gresham; Dr. Charles Lucas, Shelton; Dr. J. F. McNulty, Taylor; Dr. C. Minnick, Curtis; Dr. J. D. Reid, Pilger; Dr. R. G. Rich, David City; Dr. R. H. Sawyer, Lincoln; Dr. C. W. Way, Wahoo; Dr. C. C. Barr, Tilden.

THE SOCIETIES.

A meeting of the hyphenated medical society of Cedar-Dixon-Dakota-Wayne and Thurston counties was held at Coleridge, June 13. Thirty doctors were present. Dr. A. C. Cook, Randolph, read a paper on "Raynaud's Disease;" Dr. Lucien Stark, Hartington, "Relationship of one Doctor to Another;" Dr. F. G. Dewey, Coleridge, "Obstetrics;" Dr. L. J. Killian, Wakefield, "Menaces to Present Day Medicine."

The **Madison County Medical Society** met at the Norfolk Country club grounds July 13, Dr. A. E. Barry, Norfolk, read a paper on "Pernicious Anaemia" and Dr. Robert H. Foster, read one on "Hay Fever." Twenty doctors attended. An 8 o'clock dinner was served.

A meeting of the Twelfth Councilor District Medical Society of The State of Nebraska was held in Alliance, Nebraska, June 12, 1922.

The visiting physicians were guests of the Chamber of Commerce for luncheon. Brief remarks at this meeting were made by each of the visiting brethren. After a very enjoyable time at this luncheon the members and visiting physicians retired to the assembly hall in the Court House, where the following scientific program was given:

President's Address, Minor Morris, Alliance; Response, A. J. Stewart, Mitchell; Goitre, J. P. Weyr; Radium, R. L. Ivins, Crawford; Petrositis, Distinct From Mastoiditis, R. P. Stoops, Scottsbluff; Local Anaesthesia, M. J. Baskin, Alliance.

Each paper was intensely interesting and was well received. Each paper was thoroughly discussed.

With the closing of the scientific program Dr. Plehn moved that the next meeting of the society be held at Scottsbluff sometime in October of the present year, subject to the approval of the committee for that purpose. Motion carried. The matter of by laws and constitution was discussed and it was decided to ask a report of this committee at the next meeting in October.

The new members joining the society at this time were: H. A. Copsey, Alliance; M. C. Hurd, Hemingford; A. J. Stewart, Mitchell; R. L. Ivins, Crawford; E. F. Zoerb, Scottsbluff; and L. E. Sleeper, Crawford.

In the evening a banquet was held in the Palm Room of the Alliance Hotel. Following the banquet a stereoscopic lecture by Mr. Harold C. Cook of Agate, Nebraska, on the Evolution of Life, was given. The discussion of this subject convinced the audience that Mr. Cook is an authority on his subject. At the close of Mr. Cook's lecture impromptu talks were given by the visiting physicians and the leading citizens of the community who were present. Seventy-five plates were served at this banquet.

NOTES ABOUT THE DOCTOR.

Dr. W. D. Shields, Holdrege, is reported to be ill at St. Joseph's hospital, Denver.

Dr. R. R. Ensor, Detroit, Mich., has become associated with Dr. J. A. Strong, Kearney.

Dr. Roy Noble, Holmesville, a recent graduate of the Nebraska University College of Medicine has located at Salida, Colorado.

Dr. Alfred Lewis, pioneer physician of Valentine, is reported ill.

Dr. Edgar G. Barnhart and family motored to Pelican Rapids, Minn., for a month's fishing trip.

Dr. C. C. Sheperd, Ord, has been seriously ill the past month.

Dr. F. J. Wearne, Omaha, has gone to the maritime provinces on a six week's fishing trip.

Dr. Price Terrill, Omaha, recently graduated from Meharry Medical College, will practice in Omaha.

The many friends of Dr. S. A. Campbell, Norfolk, will be pleased to learn that he is recovering from a long and painful illness.

Dr. and Mrs. W. F. Callfas, Omaha, have returned from an extended trip overseas.

Dr. Carl Amick, formerly of St. Paul, Minn., has become associated with Dr. A. E. Wanek, Loup City.

Dr. O. C. Nickum, formerly of Omaha has associated himself with Dr. H. B. Cummins, Seward.

Dr. E. C. Lynch for some time a practitioner at Litchfield, has located at North Platte.

Dr. Ernest Pfeiffer, Nelson, has sailed for Germany to do post graduate work.

Dr. Frank J. Kalal, formerly a practitioner at Clarkson and Grand Island is about to locate at Howells.

Dr. George F. Simanek, Omaha, attended the annual meeting of the Catholic Hospital association at Washington, D. C., last month.

Dr. W. O. Bridges, Omaha, is said to be summering in the Canadian Northwest.

Dr. P. H. Salter, Norfolk, lured the finny tribes in the Minnesota lakes in July.

NECROLOGICAL.

Dr. Louis Swartzlander, Creighton Medical College, 1896, died at his home in Omaha after a short illness, July 18, aged 40 years.

Dr. C. Lester Hall, Jefferson Medical College, 1867, well known in the Missouri valley, one of the pioneer surgeons of the West and said to have been "most beloved of Kansas City's 'Old Guard' ", died June 10, aged about 77. He suffered a stroke of apoplexy while attending the St. Louis meeting of the American Medical Association, in May.

HYMENEAL.

Dr. D. A. Foote, Omaha, and Miss Lulu N. Maxwell, Fremont, were married recently.

Dr. Leroy Crummer, distinguished Omaha bachelor, noted internist and medical archaeologist, was married to Mrs. Myrtle Kelley, Omaha, the middle of July, and the couple immediately left for an extended trip to Europe.

BOOKS RECEIVED.

Practical Organotherapy. The Internal Secretions in General Practice. By Henry R. Harrower, M. D., F. R. S. M. (Lond.) Cloth. Pp. 416. Third Edition. Glendale, Calif. The Harrower Laboratory, 1922.

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CLINICAL AND LABORATORY FACTS ABOUT THE SALICYLATES.*

S. R. Gifford, M. D., Omaha, Neb. From the Department of Ophthalmology Uni. of Nebraska Medical College, Omaha, Nebraska.

While my clinical experience with the salicylates has concerned their effects in sympathetic ophthalmia, iritis and other ocular infections, I have naturally been interested in the theories as to their mode of action in other conditions. While all the work that has been done has not proven any of these theories to be correct, it has incidentally brought to light some facts about these drugs, and it seemed that a review of these facts might be of some little interest to a general meeting.

The first thought in explanation of the effect of salicylates is naturally that they may affect directly the organisms causing disease, either killing them or preventing their further growth.

Sodium salicylate, however, inhibits ordinary bacterial growth only in a concentration of 1-250, (Bucholtz(1)), and requires a much greater concentration to actually kill bacteria, while acetylsalicylic acid (Stockman(2)), fails to inhibit growth at 1-250. Such concentrations could probably not be obtained anywhere in the body during life.

Salicylic acid itself is a more potent bactericide, inhibiting growth at 1-1000, and killing bacteria at 1-300, (Bucholtz). Since it is a severe local irritant, however, administered by any route, no appreciable concentration in the tissues can practically be attained by giving the acid as such.

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*Read before the Omaha Douglas County Medical Society, Omaha, March 22, 1922.

It has been believed that the salts of salicylic acid split off the free acid in the tissues. Binz(3) found that larger amounts of the acid were freed, enough to inhibit bacterial growth, in solutions exposed to a high CO^2 tension. He found the blood of asphyxiated animals which had been given sodium salicylate contained, tested by his methods, free salicylic acid. He deduced that the acid is freed from its salts in effective concentration under conditions of high CO^2 tension in the body and believed that these conditions were realized in some inflamed tissues, notably the joints in arthritis. Vinci(4) gave some support to this theory when he showed that the joint fluid of animals with induced arthritis contained more salicyl than that in the muscles, and that the difference was much greater than that obtaining in normal animals. This theory had always seemed the most satisfactory to me, but later work seems to have exploded it. Feser and Friedberger(5) found no free salicylic acid in blood containing salicylates, and Hanzlik and his co-workers(6) found no free acid in the blood of dogs asphyxiated after 3 to 8 times the normal dose of sodium salicylate. They also found no free acid in the joint fluid of five cases of rheumatic fever, and the sodium salicylate recovered was in slightly less concentration than in the blood. They believed that whatever salicylic acid is freed in the body is at once taken in combination by the body proteids and that salicylic acid as such plays no part in combating infection. Bacterial proteids have the same property of combining with the free acid, so that the possibility of bacteria being inhibited in growth by salicylic acid in this way may still be said to exist, though there is little chance of such a concentration being reached as would actually allow this to occur.

Since it seems difficult to prove a direct effect of these drugs on the bacteria causing disease, many observers have naturally sought an explanation in their effect on the defense reactions of the body. Campbell(7) for instance, noted a leucocytosis after sodium salicylate and ascribed the effects of the drug to this blood change. In some previous work(8) I had occasion to record the blood counts on fourteen cases of uveitis receiving large doses of sodium salicylate, and found no significant changes in counts made before and after the drug was given. Counts were made in four guinea-pigs and four rabbits, getting similar doses but no change was noted. Binz and Prudden, (Hanzlik(6)) both found that solutions of sodium salicylate paralyzed leucocytes and lessened diapedesis. So that the importance of leucocytosis and even the fact of its occurrence, would seem to be very questionable.

H. Gifford(9) accepted as most probable Oltramare's theory that the general vasodilatation following the drug caused a depletion of the previously engorged capillaries in the inflamed part. As far as I know, there is no experimental evidence for or against this theory except the clinical fact that such depletion does occur. Hanzlik, quoted by Chace(10) has suggested a somewhat related explanation "that the benefit to the joints may possibly be attributed to the local circulatory effects, which facilitate the interchange of inflammatory and metabolic products."

Recent studies on metabolism by Barbour and his co-workers(11) have disclosed some interesting facts as to the anti pyretic action of this group of drugs. During the time of temperature reduction from aspirin in febrile patients, they noted a large increase in heat elimination (38.2%) to which they ascribed the fall of temperature, as it was accompanied by only a slight increase in head production (3.5%). The temperature reduction was much increased by simultaneous injections of dextrose. They later showed that this and other anti-pyretics produced an increase in blood sugar which was always proportional to the drop in temperature, and with this went a decrease in the blood solids, that is, the blood became more diluted. Quinine produced an increase in blood sugar of 100%, sodium salicylate, 25-50%, antipyrin somewhat less. Injection of dextrose alone produced a decrease of temperature in similar febrile animals. The authors believe that this property of mobilizing the sugar from the tissues into the blood stream, thus causing a dilution of the blood by osmosis, gives these drugs their antipyretic effect. Although the same increase in blood sugar is noted after the drugs in normal animals, there is no decrease in other blood solids, hence no dilution of the blood, and no decrease in temperature. From this they concluded that there must be, in the febrile state, more available water with which the blood stream becomes diluted. Whether this explanation would have any bearing on drug action in such local infections as iritis, where there is no rise of body temperature, seems an open question, but this work may open the way to new lines of investigation.

One well proven effect of the salicylates, as well as of the related cinchophen and its derivatives, is their effect on uric acid excretion. Denis and Means(19 20) found an increase in uric acid excretion to be constant and marked, up to 30% and that with it went an increase in nitrogen output. An increase in elimination of sulphur by the urine has also been proven. Denis suggests that possibly this increased elimination, if not in itself beneficial, might signify also an increased elimination of toxic products of disease, which might explain the action of the drug. It must be remembered, however, that Hanzlik found renal function in many respects to be impaired after the drug. Though this effect on uric acid has been considered specific for cinchophen, whence the trade name "Atophan," Fine and Chace(21) and others (Chase, Myers and Killian(10)) have found sodium salicylate as effective in this respect.

In using the salicylates, especially in rheumatic fever, it is becoming generally recognied that large doses must be given to secure the desired effect. My father (9 and 12) was the first ophthalmologist to use anything like the present large doses in ocular, affections, and his formula for giving sodium salicylate, one grain per pound of body weight per day, which has been adopted by many clinicians, is, so far as I know, original with him. The clinical fact that very large doses may relieve symptoms when smaller doses apparently have no effect, is supported by some laboratory evidence. Most important is the rapidity with which the drugs are found to be excreted by the kidneys. H. Gifford found salicyl in the urine in less than five minutes after fifteen grains of sodium salicylate had been given by mouth. Drasche, quoted by Hanzlik (1), found it in a few minutes after 1/100 gram and Bălz (ibid) with a catheter in the ureter, found it after eight and a half minutes. Absorption of sodium salicylate is practically complete, and nearly all its excretion is carried out by the kidneys. According to Ehrmann (13) traces are found until 96 hours after the dose, on an average. Hanzlik (14) obtained about the same results (3-4 days) but found that the greater part was eliminated during the first ten to twenty hours. It is evident that to produce any continued concentration of the drug in the blood or tissues, the doses must be large and frequent.

Excretion by the kidney, though rapid, is not complete. Hanzlik could only recover 75-80% of the drug administered, so that the remaining 20-25% must be destroyed in the body. This was in normals, while in febrile patients 40% was destroyed. The significance of this is not clear, but it indicates a reaction to the drug peculiar to febrile patients which probably has some bearing on its specific effect.

While large doses of the salicylates are necessary and usually well-borne, aside from temporary nausea, ringing in the ears, and sometimes vomiting, it may be well to recall some definite effects of these drugs on the body which, under certain circumstances, might produce serious results. It has long been known that salicylate therapy often produces albuminuria. Hanzlik and Karsner (15), however, showed that doses corresponding to the human dose produced severe nephritis, often fatal, in animals. Hanzlik (16) later showed that ordinary therapeutic doses invariably caused the appearance of albumin, leucocytes, and casts in the urine of normal, rheumatic and other febrile persons. A preexisting albuminuria was aggravated by the drug. These changes in humans usually ceased at about the time when elimination ceased, and no serious effects were observed, but in a few cases, the albuminuria persisted considerably longer. I have observed severe nephritis in cats, especially in kittens, with small doses; one-half grown cat died after nine grains of sodium salicylate given in two days, one after ten grains and of the others that died, most showed gross kidney changes.

Another practically constant finding after salicylate therapy is a slight degree of oedema. Hanzlik and his associates (17) found this, as shown by increase in body weight, in all their patients except those who perspired profusely. Since the amount of urine excreted was markedly diminished in all these cases, they attributed the oedema to impaired kidney function. With respect to both urinary changes and oedema, acetylsalicylic acid proved to have about the same effect as sodium salicylate.

In spite of these findings, the appearance of a clinical case of nephritis as the result of salicylate therapy is something we have never as yet seen. In some chronic cases of uveitis, the congestion returns as soon as the drug is stopped, so that it must be continued over long periods. It is fairly common to give 60 to 90 grains a day for periods of two to six months or even longer, and I have never seen symptoms of nephritis arise in these cases. One woman during the past year, a case of sympathetic ophthalmia, has taken 300 to 400 grains per week for seven months and is apparently in perfect health. One man with sympathetic ophthalmia developed scarlet fever, and in spite of this, large doses of sodium salicylate were kept up without damage to the kidneys. We have not heretofore made a point of watching the urine closely and no doubt our cases have shown the urinary changes described. Though we believe these changes must be temporary and usually of no consequence, it would seem prudent to examine the urine of all cases before starting the drug and, if there be evidences of nephritis, to choose a drug less likely to harm the kidneys.

Recent work appears to show that we have such drugs in cinchophen, or atophan, and neocinchophen or neoatophan. Hanzlik and Scott (18) have investigated the clinical effects of these drugs in rheumatic fever by the same methods used in studying the salicylates. They found both as efficient as the salicylates in lowering fever and stopping pain, though larger doses of neocinchophen were required. While 71% of cases treated by cinchophen showed albumin or casts, these changes were much less marked than were produced by corresponding doses of salicylate. Phenolsulphonephthalein excretion was usually considerably diminished. Thus the drug causes some injury to the kidneys, but considerably less than the salicylates. Neocinchophen produced even slighter urinary changes and this in only 50% of cases, while the functional test showed no constant diminution and in over half the cases an actual increase in excretion. As far as effect on the kidneys is concerned, neocinchophen appears much preferable to any of the drugs studied. Novaspirin, another drug studied, proved harmless to the kidneys but was equally without effect on the clinical picture. The other side effects of cinchophen were much the same as those of the salicylates, except for the almost constant occurrence of epigastric pain after cinchophen, which seldom occurs after salicylate. I can attest to the occurrence of this pain after cinchophen, while in my experience nausea has been less objectionable than with the salicylates. I have seen a number of cases of iridocyclitis which were not relieved by salicylate but which reacted favorably at once to cinchophen. With neocinchophen I have had as yet no experience, but expect to try it soon. The main objection to these drugs at present is their price. Hanzlik and Scott found much milder symptoms of toxicity after neocinchophen than with the other drugs, often no symptoms at all.

A few other undesirable effects of the salicylates may be mentioned. Their depressing effect on the heart, especially that of aspirin, has been overemphasized. Aspirin is only slightly more toxic than sodium salicylate, and though both apparently have a depressing effect on heart muscles in very large doses, (Hanzlik(1)), I have never seen decompensation result from their use. Occasional delirium follows large doses, and may be alarming. These are rare, however, and without contributory causes should seldom or never occur if symptoms of toxicity are watched for.

In animals, besides the deaths from nephritis after repeated small doses, I have observed deaths soon after a single large dose, apparently from overwhelming toxic effect on the medullary centers. I could explain in no other way the fact that one died while being hung up by the feet for bleeding, and the other soon after the same experience.

Individual susceptibility to the toxic effects of the salicylates varies considerably, as is well known. The much greater susceptibility of cats than rabbits already referred to was long ago noted by Feser and Friedberger (5) who explained it as due to the more rapid excretion in the herbivora. My two young cats died after nine and ten grains, respectively, while two rabbits took 358 and 450 grains in 18 days without apparent toxic symptoms. Age is a factor, and it is probably best to use smaller doses in older people. In animal experiments, the younger animals seemed susceptible to much smaller doses than would be accounted for by their slighter body weight, this being true of both cats and rabbits. As opposed to the enormous amounts which could be given with impunity to adult rabbits, half-grown animals died after as little as 45 and 60 grains distributed over several days, one after a single large dose of 30 grains. Hanzlik (1) mentions that in children the toxic dose is no lower than would be calculated for the age. Marked variations in the toxic symptoms of patients of the same age are matters of daily clinical experience, and must be set down to individual susceptibility.

This opens up the question of method of dosage and whether, after all, our usual formula is the best. Hanzlik gives 30 grains of most of these drugs every hour till toxic symptoms appear, when he stops the drug. This, like pushing mercury to the point of salivation, means that every patient gets quite rapidly as much of the drug as his individual organism will stand, and if symptoms are watched for, no more. In our eye cases, we would not think it wise to stop medication as soon as symptom arise, though we cut down the dosage, or change from sodium salicylate to cinchophen. Our cases, as a rule, get less drug during the first two days than Hanzlik's patients, but a higher total dosage, and if we should push the drug so hard at first, possibly we could not keep up sufficient later dosage, when it is still needed. Also, I believe, we more often avoid extreme nausea and other toxic symptoms.

Hanzlik found the toxic doses of the salicylates for adults to be as follows:

Synthetic sodium salicylate
  Males: 180 grains
  Females: 140 grains
Natural sodium salicylate
  Males: 200 grains
  Females: 135 grains
Acetylsalicylic acid
  Males: 165 grains
  Females: 120 grains
Methyl salicylate
  Males and females: 120 minims

As a rule, the dose for females was about 80% of that for males. The toxic dose, of course, was about the usual therapeutic dose, producing gastric disturbance and ringing in the ears.

With cinchophen, Hanzlik gave 150 to 195 grains and with neocinchophen 165 to 240 grains. Chace, Killian and Myers (10) gave 50 to 100 and in one case 200 grains of neocinchophen daily without marked toxic symptoms.

The question of the use of sodium bicarbonate is one on which clinicians still differ. Ehrmann (13) found that its only effect was to decrease the time of elimination of sodium salicylate from 96 to 48 hours. It did not lessen renal irritation, and he believed it tended to reduce the effectiveness of the drug by preventing its concentration in the joints. Hanzlik (16) found no such effect on rate of elimination, and believed it has no influence on renal changes. It is of no value in lessening gastric disturbances with sodium salicylate, since this is already a neutral salt. Cinchophen, however, and possibly also acetylsalicylic acid, it helps to convert to the less irritating salt and its use could seem to lessen the gastric symptoms. It is not necessary with neocinchophen, since disturbances are slight and less often seen.

If toxic disturbances are severe with sodium salicylate, it is well absorbed when given by the rectum and we often give sixty grains two or three times a day in this way.

My own laboratory work on the salicylates would be of little interest except to a group of eye men, and will bear only brief mention here. I attempted to find whether there was any greater concentration of salicylate in an inflamed than in a normal eye, and whether free salicylic acid was found in an inflamed eye. No appreciable differences were noted in concentration between normal and inflamed eyes and no free salicylic acid was found.

It is interesting to note the rapidity with which salicyl appeared in the aqueous after a dose of sodium salicylate by stomach tube. It was detected once after 25 minutes and usually in 30 to 40 minutes. After 40 minutes, it could usually be estimated quantitatively. After one dose of 15 grains, it could still be detected in the aqueous after 20 hours, not after 24 hours. The concentration in the aqueous reached 1-3600 and even 1-1250, and 1-5900 to 1-4100 in the whole eye by weight. In the one case in which it reached 1-1250 in the aqueous, it was only 1-17,600 in the blood. Greater concentration than that in the blood was also present in the pericardial fluid which showed 1-5000 salicyl. In another rabbit and a cat this same increased concentration in the eye was noted. These results were unexpected, and are not in agreement with the work done by others on joint fluid. But accumulation of the drug in a relatively stagnant serous cavity from the more rapidly circulatory blood stream is not unthinkable. Even though the concentration of salicyl attained was never and probably can never be bactericidal or even inhibitony to ordinary laboratory organisms, the fact that such relatively high concentrations can be reached seems to make more plausible the effects of the drug in such an organ as the eye. And the possibility may at least be expressed that more delicate organisms such as the still unknown cause of sympathetic ophthalmia, if it prove to be an organism, may find an unfavorable medium for growth in tissues with such a component.

Just how the desirable effects of the salicylates are produced we do not as yet know. It seems likely that they will be found to be concerned in some way with tissue metabolism. But it is certain that their effect in counteracting local inflammations is marked. In this effect the salicylates and their near relatives, given in sufficient doses, are almost unique and may be called the antiphlogistic drugs par excellence.

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DISCUSSION.

A. S. Rubnitz, M. D., Omaha: I will try to trace the salicylate cycle in the animal body, i.e. in what form are the salicylates absorbed and circulating while they are bringing therapeutic results.

Let us take, for example, sodium salicylate, the most commonly employed neutral salt of salicylic acid. Given by mouth, a greater part of it is rapidly absorbed from the stomach as such; it circulates in the blood unchanged (it may perhaps attach itself to some protein molecules, but will hardly unite with anything in the blood chemically), and may be transformed into some acid form only when it is excreted by the kidney and strikes the acid urinary medium.

But there is always a minor part of the sodium salicylate which will be transformed by the hydrochloric acid of the stomach into free salicylic acid and will be absorbed into the blood in that state.

Due to the basic properties of the proteins of the blood the salicylic acid will unite chemically with the amino radical of the protein forming a definite chemical compound, i.e. a salicylate of albumen.

In Hanzlik's work on salicylic acid, he cites a theory advanced by Jacoby in 1908, "that the salicylates must be circulating in the blood bound in some way with amino bodies."

It is true that only a small fraction of the salicylate taken is absorbed as salicylic acid, but may it not be the fraction which is responsible for its therapeutic action?

It will be up to the experimental pharmacologist to determine whether it is not that part of the salicylate which is absorbed as salicylic acid and combines with the protein molecule in the plasma that is responsible for salicylic action in disease.

If this be true, very small doses of salicylic acid given at more frequent intervals would do just as much good as the heavy doses of sodium salicylate. With the present methods of treatment (giving massive doses of sodium salicylate) the amount of salicylic acid absorbed is variable, depending on the amount of free hydrochloric acid in the stomach, and, perhaps, the so-called idiosyncrasies for salicylates depend on that factor, i.e. given a patient with a higher hydrochloric acid concentration he would have a greater salicylic acid absorption and a greater amount of salicylate of albumen circulating in his body, hence a greater reaction. On the other hand, a patient with a low gastric acidity would absorb most of the drug as the more or less inert sodium salicylate which is rapidly excreted without giving much symptoms of toxicity.

Would not the fact that herbivora tolerate salicylates better than carnivora substantiate this supposition?

If, however, my assumption that the salicylic acid is the active therapeutic agent is incorrect, and all we need is to have plenty of sodium salicylate absorbed in the blood, the addition of sodium bicarbonate to each dose of sodium salicylate would seem to be a very rational therapeutic measure inasmuch as it tends to lessen the possibility of salicylic acid formation, which we all know is quite irritating.

Victor E. Levine, M. D., Omaha: I wish to congratulate Dr. Gifford on the masterful presentation of his work. I am very much interested in scientific research carried on by clinical men. The ideal in scientific medicine is exemplified by Dr. Gifford's paper in which the theoretical and the experimental are sought for the purpose of practical application to clinical medicine.

I wish to mention the fact that the toxic effects obtained by Dr. Gifford on cats and the less toxic results obtained on rabbits may be explained on the basis of diet. It is much easier in the laboratory to supply an adequate diet for herbivorous animals than it is for carnivorous animals. The large quantity of vitamines and carbohydrates which the herbivorous animals is likely to get is more favorable to growth or well being. Animals on inadequate diet are liable to lose some of their resistance to toxic substances. Carbohyrates are especially valuable since part of the salicylates administered are rendered nontoxic by conjugation with glycuronic acid, a derivative of glucose. Idiosyncrasies observed in human beings as a result of salicylate treatment may perhaps be attributed to nutritional faults.

Salicylic acid and its derivatives are rapidly absorbed from membranes, are rapidly conjugated or changed otherwise and are rapidly eliminated. The elimination may begin within fifteen minutes and is practically completed within six to forty eight hours.

The ease with which the body rids itself of salicyl compounds is quite remarkable. While some of the salicyl compound is excreted free, most of it is believed to be conjugated. Some of it is supposed to combine with glycocol (amino acetic acid) to form salicyluric acid, although Hanzlik in 1916 failed to find such compound in the urine. Since the salicylates are phenols, they, like phenol or cresol or thymol, conjugate with sulphuric acid to form ethereal sulphates and with glycuronic acid to form glycuronates. Owing to the phenolic character of the salicylates a part may undergo oxidation with the formation of highly colored products in the urine. Large doses of salicylates may color the urine green—a pigment typical of the oxidation of many phenols. Phenol itself is partly oxidized to hydrochinon and to pyrocatechin. It is these oxidation products which undergo further change to impart a smoky color to the urine in carbolic acid poisoning.

The ease with which the salicylates are absorbed, changed through intermediate metabolism and finally excreted is of great interest to the clinician. It is these facts which explain the need of large and frequent doses. Such large and frequent doses may bring untoward side actions, such as nausea, vomiting, ringing in ears, deafness, vertigo, headache, mental dullness and confusion, diaphoresis, quickened pulse, impaired vision. Moreover, large and frequent doses result in the appearance of albumin and casts in the urine. All these undesirable symptoms, however, disappear quickly when the drug is discontinued. The effect on the kidney is a phenol effect. Phenol produces the same urinary picture. Dr. Gifford is certainly in the right when he maintains that all patients should be examined for the presence of a nephritic condition before salicylates are to be administered, especially in large doses.

Since the rapid elimination which necessitates large doses, and the untoward effect on the kidneys are properties of the phenol group, efforts have been turned in the direction of finding a compound or a series of compounds, not phenolic in character, but which would exert the beneficial action of the salicylates. Such compounds have been found in atophan (phenyl quinoline carboxylic acid, C o H 5 N.C 6 H 5 C 00 H 2:4) and some of its derivatives. Atophan possesses the antipyretic action of quinoline and like salicylic acid, it is analgesic and antirheumatic. It is perhaps much more efficient than any other drug in increasing the excretion of uric acid. It has all the advantages of salicylates without their disadvantages, for it is generally free from unpleasant effects, even in large doses.

F. W. Heagey, M. D., Omaha: The occurrence of an acute nephritis with use of salicylates has not been seen even with doses of acetyl salicylate up to 360 grains in 24 hours. Phenyl salicylate, or salol, does not seem to be so harmless, and should not be used in such large doses. The reported cases of nephritis of the hemorrhagic variety with the use of salicylates would seem to be due rather to the disease for which salicylates were being given. I feel that the danger of renal damage is infinitely greater without salicylates than with them, and that where the salicylates are indicated they should be used in doses large enough to obtain immediate and lasting effects.

As to the administration of salicylates, we have obtained the best results from sodium salicylate and sodium bicarbonate, or acetyl salicyic acid without alkali. The use of sodium salicylate intravenously is very effective in the cases with stomach irritation, or where there is need of rapidly saturating the patient with salicylates. Rectal administration is also of value for the same purpose.

Dr. S. R. Gifford, M. D., Closing: I was very much interested in Dr. Rubnitz' opinion as to the absorption of small amounts of free salicylic acid from the stomach and their fate in the body. While I know of no work that has been done on just this point, I would think it unlikely that any considerable amount of salicylic acid could be absorbed from the stomach as such since sodium salicylate is so much more soluble than the free acid and is absorbed from the stomach so rapidly that there would be little time for salicylic acid to be formed. If these small amounts of salicylic acid should be absorbed, the question of combination with the body proteids and therapeutic effect in this form opens up a possibility which so far as I know has not been sufficiently considered. There is a possibility, as Dr. Levine suggests, that the phenol derivatives may be important in the toxic effect of the salicylate. So far as I know, these phenol combinations have not been recovered and even salicyluric acid which was formerly supposed to be present in large quantities in the urine after the drug, is probably not present at all in the urine according to Hanzlik's latest work. No matter what form of salicyl is present in the body, the important question is, "Just how does it act?" Laboratory workers have not as yet solved this question but it seems likely that the effect of the salicylates will be found to be concerned with some of the intimate facts of metabolism.

UNUSUAL TYPES AND SEQUELAE OF ACUTE EPIDEMIC (LETHARGIC) ENCEPHALITIS.*

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The present paper is in reality a continuation of the subject discussed by the writer at our State meeting in Lincoln last year. At that time it was our purpose to familiarize our subject by classifying and grouping together certain fairly constant and characteristic symptoms usually encountered in this disease. As an apology for preparing two papers upon the same topic, so close together, we may plead the scope of our subject is great and the symptomatology so voluminous that any one paper prepared for such a meeting as this, can make mention of but little more than a mere outline in the allotted time.

During the present epidemic, which has continued in this vicinity since 1919, at which time the disease was first discovered in Nebraska, we have encountered not a few cases, which could not be placed in any of the more familiar groups referred to in our paper of last year.

In some of these unusual types, the disease has been fulminating in character, rapid in progress, most acutely active and fatal in a few days; in others, the course has been just the reverse, that is, the progress is extremely slow, the mortality low and the symptoms very mild, so mild, indeed, that the diagnosis might be called in question. We believe, during the past year, especially, in this central western region, taking all types into consideration, that the disease has generally run a more mild course and the mortality rate has been lessened; also the number of cases encountered have not been so numerous as during the previous two years.

As time progresses, we are becoming better acquainted with the malady and recognize more readily the usual and hence, as well, the unusual manifestations, some of which possibly were overlooked in our earlier experience with the disease.

It is a difficult matter to give an entirely satisfactory explanation as to just why some of these unusual types should exist, but that they are occasionally encountered is most certain. One explanation suggested for this varied manifestation is that there has been an alteration in some manner of the properties of the organism or toxins from which the disease has sprung. These organisms or toxins have become accentuated in certain instances or possibly in others attenuated after having passed through many varied and differing hosts, under entirely different conditions.

As to our actual knowledge on the entire question of etiology, however, we are much in the dark and there is yet a great deal of work to be accomplished before this phase of the subject can be adequately elucidated.

A careful perusal of the history of these epidemics occurring many years apart would lead one to believe that after a period of activity, the disease gradually becomes quiescent or extinct and the materies morbi of whatever nature it may be, dies from exhaustion or a lack of suitable soil upon which to flourish.

In a study of the course of the present epidemic in the United States, one is confronted by the apparent increased activity and virulence encountered in the eastern districts in comparison to that found in the western. It would seem that the epidemic lost to some extent, at least, its force and violence as it proceeded westward. On the Pacific Coast we hear but little of it and but comparatively few cases are reported in comparison to the east, or even central west, and the mortality rate is necessarily less. In the extreme west the medical profession has given but scant consideration to the subject, because of their lack of practical observation and experience. This encephalitic epidemic may be described as a wave passing over the country, the greatest force of which was felt in the East and as it proceeded Westward, this force became less and less, not only in activity, but in the number of cases encountered, as well.

Just what, if any, significance this fact may have upon the variety or type of symptoms encountered in our vicinity, it would be difficult to state. Again, hygienic and climatic conditions may be an important factor in modifying the etiological element and thus, to some extent, be accountable for the altered clinical pictures observed.

The usual conception called to one's mind when the term acute epidemic (lethargic) encephalitis is mentioned, consists of a familiar triad of symptoms, namely, somnolence, ophthalmoplegia and marked asthenia. This is the usual picture we expect to encounter and most rightly so, for we have gained our knowledge from past experience and observation. However, during the present epidemic in this region, particularly in the past two years, our well arranged triad picture, as above described and with which we were just beginning to become reasonably familiar, has been sadly disarranged at times. Instead of the classical description just referred to, we have encountered an entirely different syndrome, but with plenty of evidence yet remaining to mark these conditions unmistakably as those of acute epidemic encephalitis.

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*Read before the Nebraska State Medical Ass'n., Omaha, April 26, 1922.

In this unusual group, we have encountered some cases of the previously mentioned acute and fulminating type, occurring in otherwise strong and healthy adults, that have proved fatal in a few days, even less than a week. On the other hand, we have seen patients who were up and about, walking to the office they having been subjects of the disease for weeks, without the real nature of their trouble being suspected. To describe these types more in detail, with fairly illustrative cases of each, we will briefly report examples. The first and second may be designated the acute bulbar variety and the third as the pyramidal tract type.

Case No. 1. Referred by Dr. A. P. Candon and seen at Nicholas Senn Hospital, September 26, 1921. P. O. P. Male, aged 43, married, American, lumberman, family history negative, previous personal history negative, excepting that in 1918 he was treated for gastric ulcer, at which time he made a good recovery and two years ago, he underwent an operation for hemorrhoids, from which he also recovered well, and two weeks before his present illness the tonsils had been removed, but he made the usual recovery from the last operation

Present illness: Three days previously (September 23), he began to complain of headache and dizziness and also his throat was somewhat sore, but as the tonsils had recently been removed, he thought but little of this, believing it to be due to this operation. Within twenty four hours, however, he developed fever, the temperature reaching 103°; he also complained of seeing double and of ringing in his ears; also he noted within thirty six hours that he could not protrude the tip of the tongue past the teeth or open the mouth sufficiently to introduce a lead pencil between the jaws, and he was in a markedly general weakened condition.

Examination: We find a well preserved male, medium as to development, with anxious expression; he is unable to speak aloud or swallow any substance whatsoever; in fact, a careful neurological examination revealed an involvement of all of the twelve pairs of cranial nerves, excepting possibly the 1st and 2nd. No sensory disturbance was detected and the general muscular power was markedly weakened, but no complete group paralysis was found present in any other part of the body; the sphincters were normal, but slow; as to the superficial reflexes, the abdominals were present, but diminished and unequal on the two sides; the plantar on the right was flexor, the left was of the extensor type and also on the left, a Gordon and Oppenheim were present; the deep reflexes were all present and could be described as active, but no clonus was at any time obtained; the heart was erratic, sometimes being 130 and at other times slow, even down to 60.

Laboratory report: This showed some slight increased cell count, there being thirteen per C. M. M. and the fluid was found under moderate pressure, otherwise the laboratory findings, including Wassermann, reaction were negative throughout.

Regardless of all treatment, this patient died a bulbar death the second day after entering the hospital, as a result of the acute periaqueductal involvement. No autopsy was secured.

Case No. 2. Seen with Dr. O. S. Hoffman, of Omaha, Jan. 13, 1922. H. L. Male, age 33 years, Pole, auto mechanic, previous personal and family history negative, no previous diseases and the present trouble not preceded by a cold or indisposition of any nature, so far as he is able to recollect He awoke as usual. three days ago, excepting that he felt dizzy and had some general headache; he had been out to a boxing contest the night before, but had not indulged in any dissipation whatsoever, and had slept as well as usual and did not awake until the usual hour of arising. He decided he would not go to work that morning, because of the dizziness, so he remained at home during the day and took some simple remedies for this condition. The following day he noted he had some difficulty in swallowing and that his mouth and throat would fill with saliva, which, if he attempted to swallow, would choke him; about this time he noted also that while he could open his eyes, it was with some effort that he could keep them open; also, about this date, he detected that he was growing decidedly weaker. This weakness was general and not confined to any particular part of the body or group of muscles. Dr. Hoffman, his family physician, was then called, but the case did not improve and we saw the patient in consultation with Dr. Hoffman the following evening, at which time his condition may be described as follows:

Examination. We find a young man of dark complexion, well preserved and fully developed, medium in size, with an anxious expression, very restless and his speech very indistinct; the saliva running from his mouth; mentally he seems to be in a perfectly clear and normal condition for a person so seriously disturbed. He is unable to swallow only with the greatest difficulty, nor can he protrude the tip of the tongue past the teeth; the mouth contains much saliva and any effort to swallow same results in strangulation and coughing; the extremities are cold and damp; perspiration quite profuse over entire body and head; eye lids droop and they can scarcely be raised, even for a short period; pulse is rapid and weak, 118; respiration but slightly increased and not in the usual ratio to the pulse. In all regions sensation is found to be normal; reflexes, both superficial and deep, are found absent; the plantars being of the flexor type; general muscular weakness very pronounced, being reduced one half to two thirds below what should be his normal standard; he was ordered to the Wise Memorial Hospital at once for further observation and treatment and he was moved there the same evening.

At the hospital a laboratory investigation of the spinal fluid disclosed no marked alteration from the normal, excepting a slight increase of pressure; the cell count was ten per cm. and slight increase of globulin, otherwise this report was entirely negative, as was also the urine. The temperature range was between 97.8° and 98.6°, the pulse was 90 to 102 and the respiration from 20 to 25.

The following day, his general condition was much the same, the exhaustion being, perhaps, less; however, because of the great distress and irritation brought on by attempts at tube feeding, this method was abandoned and nourishment per rectum was substituted.

The second day at the hospital, the general weakness was more pronounced and the bulbar paralysis more extensive, if possible, than the day previous. The case was seen by Dr. A. D. Dunn at this time. However, the following night the bulbar condition became suddenly more acute and the patient died in the early morning, after being ill less than six days.

While these two cases represent in a general way, the similar types of the disease, there is considerable difference in them from a neurological point of view.

Case No. 3. Referred by Dr. Ivins of Crawford, Nebr., Oct. 16, 1920. This patient gave the following history: G. R. Male, 20 yrs.; single; born in Nebraska; rancher; family and previous personal history negative, he having lived the outdoor life of the usual western ranchman since boyhood and was well and strong until his present ailment.

Complaint: Unable to use his legs as he should; the right being more disabled than the left; the right arm is also markedly weakened and awkward; the left arm, he thinks, is normal; the left face, during the present illness, had a peculiar stiff sensation for a time.

Onset: Towards the latter part of August, preceding, that is about six weeks previously, the exact date he being unable to name, he began to note a weakness in the right leg, the knee giving away without any apparent cause; there was no pain in the leg; he also noted he was unable to walk upright and straight as before, there being lack of power in the back; he was unsteady and "shakey," as he described it; his head was not clear and if he stooped over, he was very unsteady and dizzy. He did not give a history of distinct diplopia, but things did not look just right to him for a time. About two weeks after the onset, he noted the right arm and left leg becoming affected, but these never became so much weakened as the right leg. About one week later, that is, about three weeks after the onset of his illness, he noted a peculiar drawing or stiff sensation in the left face; this condition did not last long—not over a day or two altogether, as he now recalls. He attempted to work in the hay field for a week or ten days following the early onset of his trouble, but was so "unsteady, shakey" and generally weakened, he was unable to accomplish anything and was compelled to quit, because of the weakness and trembling, which was not confined to the extremities mentioned, but extended to the entire trunk.

As he had been subject to tonsillitis and sore throat previously, especially during the winter season, he was not very clear as to whether the present illness had been preceded by these symptoms or not, as he said he paid no attention to such things; so a definite history of previous nasopharyngeal infection was wanting.

Examination: We find a young man, light complexion, weight about one hundred forty five pounds, five feet, eight inches in height, up and walking about, with a somewhat unsteady gait, expression, speech, sleep, intelligence, attention, memory, emotions and special senses, are all normal, but his temperature is 100.3° and the pulse is 130. This condition of rapid and irritable pulse with little or no relative corresponding alteration in temperature is not infrequently encountered in this disease.

Neurological examination: Disclosed no sensory changes in any region and no group paralysis, but marked weakness and spasticity in the right leg, right arm and left leg, the left arm being but slightly weakened, but that it was somewhat involved was clearly apparent, as it was accompanied by a certain amount of spasticity; the deep reflexes were all increased to the point of plus, plus; the superficial reflexes, abdominal and epigastric, were absent on the right and the left were present, but were minus; the cremasterics were both present and about equal; the plantars were of the Babinsky type; double ankle and patellar clonus were present but most marked on the right; also the patellar clonus was greater on the right; the gait was spastic and awkward and a slight Romberg was obtained. The finger-nose test defective on right, but less so on the left.

He was referred to the Fenger Hospital, where the laboratory findings were reported as follows: Blood, urine and spinal fluid, as well as eye grounds, practically normal.

COURSE.

During the first three or four weeks in the hospital, the temperature varied from 100° to 102°, but it gradually subsided, at the end of three weeks and became normal; the pulse also became less rapid, but even when he left the hospital, it was generally about 80 and a little exercise would increase this rate to 100. After about three weeks of treatment, a general improvement set in, the reflexes becoming less active, the spasticity diminished and the superficial reflexes returned to almost normal type; this was especially noticeable in the abdominals, the right which had been absent, returning and eventually being equal to the left, both being normal. The clonus also gradually lessened and was not sustained as previously; plantars both became of the flexor type. He could walk with much less effort and spasticity and the unsteadiness was definitely improved. After eight weeks in the hospital, he was allowed to return home, with directions to report later on for treatment and advice. Later reports show continued improvement, even at the end of a year, but he was not entirely normal.

REMARKS.

Cases No. 1 and No. 2, represent entirely different types of the disease from the one just reported. In these we see the acutely active fulminating form and an entirely different region of the central nervous system involved. In the first two cases reported, the periaqueductal region has received the brunt of the attack and if the area involved is extensive, a fatal termination is the rule. While no portion of the nervous system may be considered exempt from the ravages of this disease, yet the structure involved and the intensity of the activity present is of prime importance.

Case No. 3, is doubtless an example of epidemic (lethargic) encephalitis, in which the pyramidal tracts were the principal portions of the nervous system involved and also was of the ambulatory variety, as the young man had been up and about for about eight weeks during the early course of his disease and as he had no definite paralysis and suffered no particular pain, he did not take any precaution to be quiet, until informed as to the serious nature of his trouble.

As a summary, we would call attention again to that triad, first, so aptly, we believe, mentioned by Barker, namely—somnolence, ophthalmoplegia and asthenia, as being found present, as a rule in most of the cases, but not in all and it is the atypical cases that keep us interested in the practice of medicine.

SEQUELAE.

The question has been repeatedly asked; do the patients who have been the subjects of epidemic encephalitis recover completely? Are they mentally all right after having suffered from this malady? Do they remain paralyzed in any particular, after having recovered from the acute stage of this illness? In short, what are the end results? These are all very important questions, not only to the patient, himself, but to his friends, as well, and are points upon which the medical attendant is supposed to be fully informed. In answer to the above queries, we all probably have realized the fact that sufficient time has not yet elapsed for us to give a definite reply to the above enquiries. However, as time passes and our experience becomes greater, we find some of these cases, who have been subjects of the disease, one, two, or three years before, reporting to our offices and they present, frequently, residual symptoms of much interest. But few observers have seen a sufficient number of cases to formulate any statistics of value, yet by taking various reports of those who have observed many cases after several years, some conclusions may be obtained at this time.

In considering the neurological residuary symptoms, the most frequently encountered by us is the resulting paralysis of the seventh cranial nerve. This is generally unilateral, but may in rare instances be bilateral. A facial weakness not infrequently furnishes the first suspicion of a previous attack of epidemic encephalitis and this particular condition we have noted in children as well as adults, two or three years following the encephalitis and as far as we are able to report at this time, the deformity would seem to be of a permanent character. The Parkinson syndrome, or one resembling it closely, has been encountered and described by many observers. This symptom complex, like most encountered, is not confined to any age or sex of those who have been subjects of this disease.

The explanation offered for occurrence of this syndrome is the frequent involvement of the basalar ganglia and more especially the corpus striatum, in which, according to the investigations of Ramsey Hunt and others, is mostly located the pathology producing the symptoms known as Parkinson's Disease.

As no portion of the central nervous system is exempt from the ravages of epidemic encephalitis, we can thus readily understand the reason for the frequent presence of the Parkinson-like syndrome. Where this particular region of the brain has been extensively and seriously involved, the symptoms produced in certain cases may be described by the term "decerebrate rigidity"; that is, the patient's body being stiff and stone like and he is incapable of altering his statue-like position, voluntarily, and all cerebral function, including speech, being without inflection or expression. The condition of such individuals is certainly deplorable and doubtless death would be a relief to the patient as well as to all concerned.

The residual mental condition of patients who have been subjects of epidemic encephalitis is not always at all satisfactory or desirable; insomnia frequently remains and is often most intractable; also the emotional element in the mental makeup of the individual is not infrequently disturbed and remains in this condition indefinitely. Large and otherwise apparently strong and rugged individuals, we have seen repeatedly cry like babies, without provocation, and these same cases are not infrequently exalted without apparent reason and the condition of euphoria being markedly in evidence. This emotional instability in our experience is usually encountered in persons described as previously "nervous". As to the duration of such condition, we are also unable at this time to give an opinion. The general mental attitude of the individual to his surroundings is often changed, he fails to react to his environment as he did before, being unstable, irritable and lacking mental poise, while previously he had been of a serene and calm temperament.

This change is more noticeable in children and the younger adults than in the mentally more mature and of interest on this question is a report by Paterson and Spence. (Lancet 2-491-September 3, 1921), who summarize the after effects in twenty five cases of lethargic encephalitis occurring in children from three months to eleven years of age and report as follows: "All cases were physically and mentally normal prior to the onset of the encephalitis. One child, aged twenty one months, died on the seventh day of the illness. Five cases recovered completely and were normal mentally, but in one of the five, a slight ataxia was noted one year after the onset. Seven cases resulted in permanent and hopeless idiocy; two of these seven patients had spastic deplegia with 'scissor' legs and contractures and one, rigidity of the extremities, with purposeless movements. In eleven cases, minor degrees of mental deficiency (imbeciles, in the usual meaning of the term) are reported. One patient, one year after the onset and now eight years of age, presents a paralysis agitans (Parkinson) syndrome; another, three years after a five weeks' illness, has been convicted of theft on several occasions and is considered an incorrigible thief; three are attending special schools for mentally defective children.

The effects of lethargic encephalitis in infants and young children are much more serious than in older children. Of those affected before the age of twelve months, only one has made a complete recovery and four are considered idiots.

The after effects of encephalitis appear to be in direct proportion to the severity of the initial attack. Some degree of mental deficiency may be expected from the illness, if the stupor and lethargy persists for three or four weeks, in a young child. If, on the other hand, the illness is brief, with stupor for a few days only, complete recovery will probably result. The younger the child at the onset of the disease and the longer the acute phase of the illness, the greater will be the degree of the mental deficiency, which follows it. The physical results from encephalitis in childhood may include spastic diplegia, hemiplegia, symptomatic paralysis agitans, muscular rigidity and tremors."

Under the title, "Late results in Epidemic Encephalitis", Grossman, from the service of the Mount Sinai Hospital, New York, reports 145 cases with the following summary and conclusions:

1. Psychic functions in some form or other were disturbed in fifty five per cent of these patients.

2. Insomnia was present in fifty five of the cases.

3. Tremor and irregular involuntary movements were found in fifty eight per cent of the cases.

4. The deep reflexes were altered in thirty per cent and tonus of the muscles was disturbed in eighteen per cent.

5. Cranial nerves showed residual signs in sixty four per cent of the cases.

6. Pupillary disturbances were found in thirty per cent and five patients had Argyll Robertson pupils.

7. About eight per cent of the patients gave signs of progression at the time they were examined.

8. The mortality among the one hundred and forty five patients admitted to the Mount Sinai Hospital was twenty per cent."

EPIDEMIC ENCEPHALITIS IN RELATION TO ANTERIOR POLIOMYELITIS.*

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The distinction between epidemic encephalitis and poliomyelitis remains sharp, although each year is apparently establishing a closer relationship between the two diseases. Some progress in differentiation between the two processes was made from

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1918, when Draper (1) considered the epidemic encephalitis of England as poliomyelitis, to 1920, when Crookshank (2) was one of the opinion that epidemic encephalitis, poliomyelitis, epidemic paralytic and nervous diseases were only manifestations of the same disease. In the last two years much work has been done by various observers on the clinical and pathological, as well as the immunological aspects of both diseases.

The increasing number of cases of epidemic encephalitis has made the disease almost as common as poliomyelitis. Whereas in 1920 practically every practitioner in America had seen and recognized cases of poliomyelitis, it was not until the past year that the same might be said of epidemic encephalitis. In our review (3) of the subject in 1920, only 115 cases were reported in the United States. Now I have at hand one report (4) on a series of 846 cases, and in our own service we average three to four cases under treatment most of the time.

A great deal of the diagnostic tribulation has come with the increasing frequency of epidemic encephalitis. The absence of paralyses in epidemic encephalitis and the fact that 69% of poliomyelitis are of the abortive type, i. e., without paralyses, leaves a broad and indistinct "No Man's Land" in which symptoms are found that wear the habiliments of both diseases. We shall compare the two diseases in three stages: The first, that of incidence; second, the height of the disease; and third, the convalescence.

The stage of onset, or incidence, is the most important from a diagnostic and therapeutic standpoint, and at the same time the period of greatest perplexity. Every resource of diagnostic significance along statistical, epidemilogical, clinical and immunological lines should be drawn upon at this stage and carefully weighed in the light of the individual case. Since the recognition of poliomyelitis by Heine in 1840, and the description of the epidemics by Medin in 1887, there have been many outbreaks of the disease, particularly in New York City, Nebraska, Iowa, Vermont, in 1906 and 1916. These epidemics have remained well localized around their respective points of origin. There has been no world wide distribution at any one time.

Epidemic encephalitis, although appearing in epidemics since the sweating sickness of the fifteenth century, has been widespread. This has been especially true in the present outbreak. Starting apparently in Italy and Austria in 1917 and 1918, it appeared in France and England the middle of 1918 and in the United States late in 1918 on the Eastern coast. From September, 1918, to May, 1919, 225 cases were reported. In the winter of 1920 more than 200 cases were reported in New York alone. The first case in our series appeared in June, 1919. Since then about 75 cases have been seen. The hot summer months supply the conditions necessary for a poliomyelitis epidemic, as the disease rarely appears in cold weather. On the other hand, epidemic encephalitis is winter grown, but its seasonal limits are not sharply defined. No epidemics of poliomyelitis or epidemic encephalitis have been observed or reported as occurring at the same time or in the same locality.

Poliomyelitis does not seem to bear any relation to other epidemics. Epidemic encephalitis has followed influenza around the world, although their etiology insofar as can be determined has nothing in common. The vast disproportion between the number of poliomyelitis cases—2,000 in New York in 1908—and epidemic encephalitis with a scant 200 cases in the same district in 1921 is of note. The same disproportion is true in relation to the number of cases of epidemic encephalitis and influenza. This predominance of poliomyelitis over epidemic encephalitis is also mirrored in the tendency of poliomyelitis to go through a household—four in one family is not uncommon—while in epidemic encephalitis the occurrence of a second case in a household, town or barracks is extremely rare. One case of epidemic encephalitis in Neola, Iowa, gave a history of another member of the family being affected in similar fashion two weeks before the onset of the second case. Netter (6) has reported two such instances from France. None occurred in New York.

Osler aptly calls poliomyelitis a disease belonging to the period of first dentition. Epidemic encephalitis is an adults' disease, the average age in 864 cases being 30 years, with cases as old as 84 years. It is common to see the individual stricken with epidemic encephalitis in the prime of his life.

ONSET.

The mode of onset of both processes is similar to that of any acute infection. The difference is one of degree only. In the presence of an epidemic of poliomyelitis it is possible to make the diagnosis prior to the appearance of the paralysis by the fever, rapid pulse, flushed face, anxiety, pain and signs of meningeal irritation. Many cases are recognized only when the paralysis has appeared. It is a common occurrence to have the patient go to bed at night apparently well and wake up in the morning with the paralysis. There are many instances in which the paralysis was not noted until the child was examined by a physician. The majority of epidemic encephalitis cases have a slow insidious onset. The history is generally one of a cold, with fever, and probably some headache and general malaise, extending over several weeks, followed by insomnia or lethargy. The ocular disturbances, together with other signs of cranial nerve disturbance, may pass unnoticed by the patient until closely questioned by the examiner. Diplopia, tinnitus, facial palsy, muscle tremors, weakness, palpitation, blurred vision are not unusual early symptoms. Any one of these symptoms may be the only thing that causes the patient to seek medical assistance. The fulminating case of epidemic encephalitis at its onset closely simulates poliomyelitis (Case 1) with an acute, febrile, meningeal onset, delirium, paralysis, progressive in extent and severity. For a proper differentiation of these cases recourse must be had to the laboratory, both pre-mortem and post-mortem.

Case 1. J. D. Patient, age 21, farmer, referred to us by Dr. Hoff, North Bend, Nebraska. Patient was seen on July 18th, 1921, and gave the following history:

Four days previously in Denver he began to have a violent pain in his head, accompanied by stiffness of the neck, nausea and vomiting. He started home, and three days later was found on a park bench unable to walk. There had been twitching of the muscles of the leg and arm, twitching of the skin, patient felt extremely sleepy and drowsy, and because of the nausea had lost his appetite.

On examination the face was quite flushed, temperature 101°, pulse 90, respirations 24. No cranial nerve disturbances, the neck was rigid, there was no evidence of respiratory movement of the right diaphragm, the abdomen was generally tender and the patient was unable to move both legs. The deep reflexes were all absent, no disturbance as to sensation. Blood and spinal fluid Wassermann reactions were negative. The spinal fluid was clear, contained no cells, slight increase in globulin. Gold chloride curve 1-1-2-2-2-1-0-0-0-0. The leukocytes were 8,000, polynuclears 76%. The urine was negative.

The patient gradually became worse. There was no evidence of cranial nerve involvement except marked twitching of the facial muscles. Patient became excited, crying most of the time. The paralysis seemed to involve the left half of the diaphragm. The patient died three days later, presumably with respiratory paralysis. This was evidently a sporadic fulminating case of anterior poliomyelitis.

The physical differences are quite apparent in most cases, especially in the presence of a paralysis of an extremity. Cranial nerve palsies are uncommon in poliomyelitis. I remember distinctly a girl, 12 years old, who was emaciated because she was unable to swallow. It was thought this was due to oesophageal obstruction. The presence of a facial palsy, atrophy of the anterior-tibial group of muscles, and history of similar cases in the community suggested poliomyelitis. Feeding by a stomach tube for a week worked miracles for the girl, who rapidly recovered strength and with it the use of the facial and oesophageal musculature. The occurence of this type of case necessitated new names to indicate the involvement of the brain stem, i. e., polioencephalitis, inferior and superior. In like manner, as Ruhrah(7) says a complete revision of our ideas of many types of disease of the nervous system will be necessitated by the appearance of epidemic encephalitis. "Spinal types of epidemic encephalitis" and "cranial types of poliomyelitis" are terms commonly used by writers on both diseases.

Optic nerve changes are very rare in poliomyelitis. In poliomyelitis the tendon and muscle reflexes are absent in the affected part. The other reflexes are seldom disturbed except that they may be accentuated during this irritative stage of onset. Babinski, Oppenheim and Gordon reflexes are rare, unless there is marked cranial involvement with pyramidal tract irritation or injury. The reflexes in epidemic encephalitis are varied and changeable. The Babinski reflex is the rule, with knee jerks accentuated one week, absent in one or both knees the next week. Ankle and patellar clonus are present, especially in the myoclonic types of the disease. Paresthesias are present, especially in the more recent cases, cold extremities, chills or thrills in the back or extremity, sweating in localized areas, one arm, over sacral region, or on side of the face. Pain may be most persistent in a part. Usually the poliomyelitis patient lies in comparative comfort with his flaccid paralysis after the febrile manifestations have passed away. The encephalitis case looks sick, and is sick.

The laboratory is a valuable aid in the differentiation of the two processes. As might be expected, the blood counts show 20,000 to 30,000 white cells in the poliomyelitis cases, while the average epidemic encephalitis white count is under 10,000. This is true even at the height of the irritation in epidemic encephalitis, and although the latter disease drags out for months, the white cells return early to normal and remain so. Urine and blood pressure show nothing typical of either process. Spinal fluids of these diseases have less of interest in a pathological way than any other disease of the central nervous system. Except from a bacteriological standpoint it is the negative evidence that completes the diagnosis of either condition in most of the cases. Poliomyelitis spinal fluids have a great increase in tension, a slightly increased amount of globulin and a normal amount of sugar .04%. The number of cells is increased, ranging from several hundred to a thousand. Polynuclear leukocytes predominate at the onset, but later they are replaced by lymphocytes. The colloidal gold curve shows reductions in the middle (8) tubes. Wassermann reaction is negative.

Epidemic encephalitis spinal fluid changes depend entirely upon the degree of meningeal involvement. The majority of cases show characteristic changes. There is a slight increase in the amount and pressure of the fluid, globulin always +1 or +2, sugar is increased, averaging .065% to .085%, the amount approaching .04% or normal, as the process settles down to the subacute or chronic stage. The cells, depending upon the day of the disease, average ten to thirty. The cells are always lymphocytes. Colloidal gold curve is either of the mild luetic or paretic type, i. e., 0-0-1-1-2-2-3-2-1-0 or 5-5-4-4-3-2-2-1-0-0. Wassermann reactions are negative.

HEIGHT OF THE DISEASES.

When the disease processes have become full blown, the similarity of the two diseases has largely disappeared. The poliomyelitis patient usually has the flaccid paralyses fully developed within three or four days, with a rapid decline of the febrile manifestations. The patient soon feels and looks better, with little to remind one of the infection except the paralyzed extremity.

Case II. Mrs. C. S. Age 29, widow. Was seen August 31, 1921. A few days previously, after swimming, she started to ache all over, especially in the back and legs This increased in intensity so that she was unable to sleep, and the flesh became sore to touch. Twenty four hours later had difficulty in walking because the legs dragged. Had some fever. The next thirty six hours she had a severe headache, and persistent vomiting. Twenty four hours later she was unable to stand because of weakness of the right leg. There were also marked twitchings of the back of the neck and the feet. Five days after the onset there was some disturbance of the function of the left leg, accompanied by severe pain in this extremity. She felt chilly and her temperature went up to 102°. She had difficulty in voiding, the bowels became constipated. No history of cranial nerve disturbances. The patient gave the following previous history, which is of interest: Throughout the spring there had been repeated attacks of tonsillitis. Tonsillectomy was done May 21st, following which she had had a severe infection of the throat. The patient had been in almost continual contact with cases of epidemic encephalitis in pursuance of her duties. The patient was given antipoliomyelitis serum of Rosenow within the week after the onset.

Physical examination one month later showed a well nourished woman, who was still suffering a great deal of pain and discomfort in the extremities. There was a marked diminution in the power of outward and inward rotation of the left humerus. The power of rotation in the left leg was slightly diminished. Flexion of the left thigh was also impaired. Patient could start flexion, but not finish it. On the right side there was a complete paralysis of the anterior muscles of the thigh, except that she could rotate the leg inward slightly. Right knee jerk was absent. Sensation over the entire body was normal. Spinal fluid on August 31st showed fifteen cells, negative Wassermann reaction, gold chloride curve 1-1-1-2-2-2-1-1-0-0. Blood Wassermann reaction was negative. At the present time the patient is able to walk without the aid of crutch or cane. There is still some weakness of the right quadriceps extensor, and marked tremor with intention particularly in the left arm. Mentally the patient is normal. This is a case of anterior poliomyelitis with slight residual paralysis.

Case III. Nurse, 32 years, single. In February, 1922, she began to have attacks of severe headache and tender scalp. This was accompanied by tinnitus in the left ear, photophobia, blurring of vision, and general muscular twitchings. The patient had a slight cold in the head with a bloody nasal discharge at this time. She felt "bilious", but finally called a physician, February 15, 1922, because of a sudden attack of faintness and palpitation. Physical examination then showed nothing noteworthy except Babinski reflex on the right side, absent right knee jerk, and a diminished right abdominal reflex. Cranial nerves and eye grounds were normal. The patient was having two to three mild convulsions a day, which lasted fifteen to thirty minutes, and usually not accompanied by unconsciousness. Paresthesias were common, thrills, itching, pain in various locations. Spinal fluid was clear, globulin +1, tension +1, gold chloride 1-1-1-1-0-0-0-0-0-0, cells three to eight lymphocytes, glucose .08% to .05% at the present time. Wassermann reactions all negative. Temperature rises to 99.6° F. every day, with no period over four days of normal temperature. The patient sleeps all day and is generally wakeful at night, has no desire to read or be read to, is bright and cheerful when spoken to, and has no mental disturbance. At the present time, sixteen weeks after the onset, her condition is the same, no paralysis of any kind. Luminal and bromides seemed to control the epileptiform attacks over a period of ten weeks because within four days after the withdrawal of the medication, the patient had another convulsion and a return of her muscle tremors. This is undoubtedly a case of epidemic encephalitis which stands out in sharp contrast to Case II.

The meningeal irritation rapidly disappears, and with it the photophobia, stiff neck and general irritability. Within a week many cases will show a general and local improvement of the paralyzed extremities with a return of lost reflexes, particularly in the muscles which will ultimately recover all, or the greater part of their function. The blood returns to normal with the decline of the temperature and at the same time the spinal fluid loses its excess globulin and tension. The lymphocytes decrease in number. Some of the patients are annoyed greatly during the period by pain and general depression, but even this passes off and recovery is the rule. The mortality of poliomyelitis is low as compared with that of epidemic encephalitis.

When the corresponding stage of epidemic encephalitis is reached the physician finds much that is different from poliomyelitis. The patients are not themselves, insomnia and lethargy alternate, vision and hearing are disturbed, palsies particularly of third, sixth and seventh cranial nerves appear, headache, feeling of fullness in the head and a sense of unreality are present. A general condition of catatonia, with mask-like expression, occurs so frequently as to deserve mention among the more common symptoms. Muscle and tendon reflexes are always disturbed. Convulsions, muscle tremors and twitchings are often present, palpitation, polypnea, dysphagia appear in many cases. The sphincters are not disturbed as one would expect with so many signs of a central nervous system disturbance. These same conditions persist day in and day out, weeks, months, and with a daily temperature of 99° to 100° F. There are no changes in the blood. The spinal fluid pressure varies from week to week. The globulin is always increased +1, without an increase in the number of cells. There is always glucose increase and a colloidal gold reaction which show reductions of a mild luetic type. Death is not uncommon at this stage, and may occur suddenly without premonitary signs of the gravity of the condition of the patient. Poliomyelitis, briefly, at this stage is a spinal cord disease with flaccid paralysis. Epidemic encephalitis is a brain disease without paralysis, but accompanied by many symptoms of brain irritation.

CONVALESCENCE.

The period of convalescence also shows many points of difference between the two conditions. Poliomyelitis leaves the patient with atrophied extremities or muscles, with disturbed bone growth, and with all the deformities that may result from faulty gait or position due to long continued paralysis. Mentally there is no disturbance. The patient merely carries externally the scars of the former infection and destruction of anterior horn cells. One third of the epidemic encephalitis cases die either in the early weeks of the infection or suddenly one to two years after the onset. Eighty eight per cent of cases reviewed by the New York Commission(9) for Research in Epidemic Encephalitis in New York, had some stigmata of the disease remaining one to one and one half years after the onset of the disease. These after effects consist of physical and mental changes (10) (11). Patients' personalities are often completely changed. Psychoses are not uncommon. There are paralysis agitans groups, which are the exact counterparts of the original disease. Disseminated sclerosis, myoclonias, choreiform movements, epilepsy, petit mal and grand mal. Not over two months ago we saw two such epilepsies in the office on the same day. One had his infection three years previously, the other six months before. Both patients were adults and gave no history of any other trouble until they were overtaken with an acute febrile illness which ended with the onset of convulsions. Unlike poliomyelitis, the reinfection of the individual or the recrudescence of the infection is frequent. As it has been said, the brain stem of a patient with epidemic encephalitis is like a volcano, the time and violence of an eruption no one can predict.

Permanent paralysis of either the cranial nerves or extremities is uncommon in epidemic encephalitis. In our series several cases had a unilateral facial weakness which had persisted over a year. One very severe case of myoclonia and athetosis had a persistent paralysis of the anterior-tibial group of muscles sixteen months after the onset. This patient was going to school every day until he was found dead in bed one morning.

The spinal fluid, even in cases which have persisted one to two years, shows changes from the normal. Globulin is present +1, colloidal gold always shows some reduction, and the sugar content remains near .06%.

The pathologist finds many differences between the two processes when he examines the tissues microscopically. The majority of the poliomyelitis lesions are found in the grey matter of the cord. There is an extensive degeneration and destruction of the anterior horn cells. The destroyed cells are surrounded by neuronophages, the vessels are "cuffed"(12) or "muffed" by lymphocytes and polynuclear leukocytes—the perivascular infiltration, as it is called. Polynuclears are extremely common, the meninges are congested and extensively infiltrated with cells, which accounts for the spinal fluid findings. Thromboses and small hemorrhages are present. In the later cases evidence of tract degeneration are present at various levels of the cord. The brain, as a rule, shows no change. It is the brain of the epidemic encephalitis patient that takes the attention of the pathologist, for here are the principal lesions. The extension of the process to the cord is often reported, but it is not the rule. The absence of cell destruction is noteworthy, and in a corresponding degree neoronophagia is absent. The perivascular infiltration of all the vessels with mononuclears and lymphocytes, especially in the mid-brain, is the outstanding lesion. This also occurs in lues, poliomyelitis and trypanosomiasis and alone is not distinctive of epidemic encephalitis. The region of cranial nerve nuclei, particularly the floor of the fourth ventricle and the iter shows thromboses, minute hemorrhages and "cuffing" of the vessels noted above. With more extensive processes this extends into the cerebral peduncles, cerebellum and basal ganglia and thalamus. Interstitial and parenchymatous changes are common throughout the entire brain, according to Boyd(13), which accounts for the varied motor sequelae of epidemic encephalitis. In other words, the pathology is one of an acute encephalitis and the sclerosing after effects of such irritation.

Immunological and bacteriological characteristics of the two diseases are extremely interesting. Rosenow(14), Flexner(15), Strauss (16), Loewe(16), Amoss(17), Levaditi(18), Harvier(18), Thalhimer(19), Noguchi and many others, by patient and brilliant work, have attempted to solve the etiological problems of these baffling conditions. Flexner and Lewis in 1910, and later Noguchi, succeeded in cultivating an organism from poliomyelitis cases which they describe as minute globoid bodies, .15 to .3 micra in diameter, arranged in pairs and masses. These pass through filters like the virus and are found in nerve tissue, peritoneum, anterior chamber of the eye, subcutaneous tissue, intrathecal spaces and nerve trunks, nasal and intestinal mucosa. The virus seems to be carried by secretions only. It is not found in the spinal fluid. These globoid bodies have been cultured for four generations and when injected intracranially or into any of the tissues noted above, reproduce the disease in monkeys. Rosenow ascribes the cause to a pleomorphic streptococcus and is able to obtain results similar to the above with animals. Amoss(17) was able to produce poliomyelitis in the monkey by the use of nerve tissue from infected human beings. But it has not been possible to produce poliomyelitis by the use of the spinal fluid of patients suffering from poliomyelitis. Serum from patients recovered from poliomyelitis protected monkeys from poliomyelitis.

Loewe(16) and Strauss(16) first determined the presence of the filtrable virus of epidemic encephalitis in the nasal secretions and spinal fluids of patients suffering with epidemic encephalitis. Seventy eight per cent of the rabbits injected intracranially with nasopharyngeal filtrates show epidemic encephalitis lesions. Seventy five per cent injected with infected spinal fluids also had typical epidemic encephalitis pathology. They also isolated minute filtrable Gram positive cocci in diploforms, chains and clumps from the nasal mucous membrane, brains and spinal fluids of patients, monkeys and rabbits with epidemic encephalitis symptoms and lesions. This organism in turn produced the same lesions in other animals. Rosenow(20) has repeatedly reproduced paralysis agitans symptoms, cerebellar symptoms, torticollis, hiccup, myoclonia, tics of the masseters and lethargy in rabbits by using filtrates from spinal fluids and nasal mucus of patients suffering from the respective symptoms enumerated above.

Levaditi and Harvier(18) found that the

virus could be preserved in glycerin preparation, that it was killed at 56° C. and by phenol 1-100, and that it remained virulent in bodies forty eight hours after death. Animals succumbed to the virus and showed lesions of epidemic encephalitis only when it was injected into the brain and spinal cord, eye or nerves. Animals recovered from poliomyelitis were susceptible to epidemic encephalitis, yet on the other hand animals recovered from epidemic encephalitis seem to have acquired some immunity to poliomyelitis.

Treatment: It is, then, of considerable importance to differentiate between the two conditions. The recovered sera of Rockefeller Institute or the Rosenow serum should be used as early as possible in the suspected poliomyelitis cases. It does no harm and to judge from the results in the Davenport and Dubuque epidemics in 1917 and 1918, is of great value in aborting the disease and preventing paralysis. In the cases of epidemic encephalitis absolute rest for a long period is necessary. Bromides, with dial or veronal, are invaluable for the insomnia and restlessness. For myoclonia and convulsions luminal is as effective as in true epilepsy. Lumbar puncture, first for diagnosis, should be repeated for relief of intracranial tension or when ever the puncture gives the patient symptomatic relief.

DISCUSSION OF DR. COULTER'S AND DR. HEAGEY'S PAPERS.

Lucien Stark, M. D., Hartington: The discussion of epidemic encephalitis as related to anterior poliomyelitis is a difficult sort of thing even to start on, because poliomyelitis has been fairly well established for a number of years, and epidemic encephalitis at the present time is merely a conglomeration of the opinions of various individuals.

To disgress a little, I would like to say that here is where the importance of the medical society comes in. If every one of us would take the same pains in recording and reporting our cases of these obscure and infrequent diseases as have the two gentlemen who have favored us with their papers, it would go a long way toward formulating statistics which would eventually give us some benefit in the diagnosis, general management and treatment of these diseases.

To my own mind, one of the important differential factors of the two is in the beginning. In poliomyelitis there is practically no sensory involvement while in epidemic encephalitis there is more apt to be sensory involvement. The meningeal symptoms in poliomeylitis will vary at times, as the pressure in the cord increases directly in proportion to the amount of involvement of the meninges. I have performed lumbar punctures where the fluid would spurt several feet when the needle entered the spinal canal. In others, I would get anywhere from eighten to twenty five drops per minute, with practically no pressure and no turbidity.

In the cell counts; in epidemic encephalitis the increase in cells is largely lymphocytes while in poliomyelitis there is a larger percentage of polymorphonuclears.

As regards the diagnoses in general, the presence of one case of poliomyelitis in a community should put you on your guard so that when you see other children of the same community who are ill and are carrying similar symptoms, the diagnostic problem becomes greatly simplified. It is always the first case that is the difficult one.

In looking over the pathology of the two conditions you will encounter a marked variance. With poliomyelitis there is a truly degenerative lesion of the spinal cord while in epidemic encephalitis there seldom is cord involvement as the pathology is usually higher up in the brain. Likewise there is a perivascular infiltration of lymphocytes in epidemic encephalitis which is not present in poliomyelitis. While, strictly speaking, functional incapacity is not pathology, it is present in both conditions. In poliomyelitis there is actual functional incapacity of the parts supplied with motor nerves from the involved area of the cord while in encephalitis the functional pathology is, in a measure, psychic. In poliomyelitis there is atrophy of muscle and containued motor paralysis while in encephalitis the psychoses are apt to persist for a long period.

In 1909 I exhibited a case of poliomyelitis before this association which showed trophic disturbance enough that a large part of the bone at the left shoulder had been absorbed. I have not seen this child for at least four years but there is practically no retention of the head of the humerus within the joint cavity. We know that it will never improve.

It seems to me that the hope of the solution of this problem lies with the bacteriologist. While attending the meeting of the American College of Physicians at Rochester, Minnesota, I saw the rabbits which really form an exhibit of Rosenow's. In one instance he had made a nose and throat culture from a man who had a paralysis agitans as a sequel of epidemic encephalitis, and injected the culture into a rabbit. This animal had the most beautiful paralysis agitans that you ever saw. There were others with wry necks and with their heads held back, all representing the type of sequel present in the individual from whom the culture were obtained.

In working the thing out to its final termination there will be numerous difficulties in the animal experimentation system because of the susceptibility and non-susceptibility of various animals. For instance, it is practically impossible to give a rabbit poliomyelitis but he will contract epidemic encephalitis very readily. On the other hand if you take some spinal fluid from a poliomyelitis patient and walk by a monkey with it, you are practically certain to have a case of poliomyelitis in that monkey. Whether or not poliomyelitis has been produced in monkies by the use of the spinal fluid of an encephalitis patient, I do not know.

That transmutation of bacteria does take place, we know very well from the experiments of Rosenow and others. A number of years ago a friend of mine while endeavoring to isolate the organism of poliomyelitis obtained some intra cellular diplococci from the spinal fluid of an acute case. He immediately began to culture the organisms but upon the fifth transplantation, what had previously appeared as an intra cellular diplococcus showed up to be a staphlyococcus. He had this same result in twelve different instances so it could hardly have been due to contamination. There is a prospect that the theory of transmutation of bacteria may solve the problem.

Poliomyelitis may be regarded as a primary disease. Epidemic encephalitis has only appeared in this country following the tremendous epidemic of influenza and I do not believe that any one has, as yet, isolated the specific virus of influenza. As regards epidemic encephalitis, is it not possible that there may be a transmutation of the organisms following influenza which are really the causative factors in its production?

There is however another hypothesis which occurs to me at this time. We have not yet learned the chemical composition of the so called antibodies which are produced in many of the infectious diseases. In fact, we know nothing about them more than that they do exist. There are also a number of us who see children with an intestinal infection to whom we feed large quantities of sugar of milk in order to provide a favorable culture medium for the production of friendly bacteria in the intestine. Would it not be possible that an influenzal infection might have such an effect on the blood stream as to make a culture medium within the individual favorable to the growth and development of the encephalitic organism? Whether or not there is any value in this idea, I will have to leave it to the trained investigator to determine. It would be interesting to know the results of experiments conducted along this line. Regardless of any theory the tracing out of the bacteriology, pathology, prevention and cure of a condition so serious as epidemic encephalitis, anything which may tend toward the reduction of mortality, the lessening of incapacitating sequelae, and the prevention of its spread are worthy of our best efforts as clinicians and investigators.

J. M. Mayhew, M. D., Lincoln: I want to protest against any apology on the part of such a trained observer as Dr. Coulter for presenting us with new information on this extraordinary syndrome. These two papers I am sure have been most enlightening to all of us and most opportune.

This epidemic is passing by. It is in review. Fewer cases have been seen this year than last, next year fewer cases yet will be seen, and the epidemic will die. Anything that one may add to the general knowledge of this disease is most acceptable, and we are hopeful that such men as Rosenow are going to add something more definite than we have, which practically amounts only to clinical observation.

In the discussion of Dr. Coulter's paper, I would suggest that possibly some attention might have been given to the prodromes of this disease. It has been very interesting to me in the few cases it has been my privilege to observe, to note that in the ordinary—if such a term can be used—case of encephalitis lethargica, we have a series of prodromes—a series of stages in some of them which can be differentiated in advance—not in every case, by any means. In my opinion, the name of this syndrome should be changed from encephalitis lethargica to encephalitis polysymptomatica.

Those of us who have seen these cases recognize them from the fact they are similar to nothing else we have ever seen. That, coupled with the spinal fluid, usually makes the diagnosis rather quickly.

The fulminating case is exciting and sequelae most interesting. Under my own observation, fortunately for me, have come a number of soldiers, most of whom give remarkably clear histories of encephalitis lethargica occurring during the years 1918 and 1919, and presenting very definite sequelae of the disease. The Parkinsonian type was the most common. The next was the epileptiform type, and the third was divided between eye and facial nerve paralysis. One especially interesting case was a diplopia; another a case showing an interesting clouding of both optic nerves. Two cases showed sequelae of the epileptic type. I am sure we have all seen these remarkable sequelae without recognizing them. I know that I myself have let many pass by and wondered how the thing happened, but was not able to solve the problem. We are getting more enlightened every day.

I wish to thank the gentlemen for the good things in their papers.

Dr. Coulter, Closing: Those of us not able to work out the laboratory findings of these cases so far as bacteriology is concerned, must content ourselves by closely examining our clinical cases and reporting them and thus making the picture so clear we may gain something from the clinical side of these cases.

Dr. Heagey has very kindly and clearly given us the differential point between anterior poliomyelitis and epidemic encephalitis. Sir William Osler, shortly before he died, was of the opinion that the diseases were interrelative in some way—he did not state just how. Possibly that relation may be worked out as time goes by, and we may yet find there is some bacteriological relation between the two diseases, but as to this we are not yet clear.

As to epidemic encephalitis, I do not know of anything that has added so much to our knowledge of neurology, and also psychiatry, in recent years as a study of this disease. We have had the opportunity of studying an involvement of the various portions of the brain—not only portions, but almost the entire brain occassionally—and we have gained much valuable knowledge by that picture. Never before in the forty years I have been practicing medicine have we been able to get such a beautifully instructive picture of the involvement of the sensory, motor and entire nervous system as in connection with encephalitis.

In regard to epilepsy, I am glad this point has been mentioned because I have seen two or three of just such cases, of individuals absolutely normal in every way before they were subjects of encephalitis. After having the disease they developed conditions that were very definitely epileptic. In two instances they recovered after proper treatment at the end of eighteen months. So that we must be on the lookout for this as a residual condition.

But the broad picture we have encountered from observing encephalitis I commend to your careful study and consideration, for you will learn more concerning the operation of the central nervous system in watching cases of this character than in any other disease with which I am acquainted.

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IDIOPATHIC EPILEPSY.*

G. A. Birdsall, M. D., Fairbury, Neb. Assisted in preparation by H. E. Harvey, M. D., Fairbury, Neb.

In presenting this subject we shall not attempt to offer anything new nor go into finer scientific details. While the subject is one of the oldest, we believe there are certain phases that will bear repetition and emphasis. Practically every thing that is written is from the specialist's view point. The greater number of these patients receive little encouragement from the neurologist and are returned to the family doctor, in most instances with instructions regarding the administration of certain few drugs and vague recommendations, the substance of which is, to "do the best you can," so it is the family doctor who sees them first, as well as last. He knows intimately their family history, the social circumstances under which they live, and the mental trend of their whole life. Eliminating institutional cases he is forced, if he is to retain the respect and confidence of the patient and his friends, to give them his best attention, and by another set of circumstances is placed in a position where he may, on account of his closer relationship, by his encouragement and close supervision, do more for these patients than any one else coming in contact with them. With these facts in mind we shall speak of this subject from the viewpoint of the family physician, in the light of our own experience and observation.

Idiopathic (or essential) epilepsy is the term applied when after careful and repeated examinations, no definite or fixed cause can be assigned. As such, the epileptic syndrome is an entity, and not one manifestation of some definitely tangible disease. While there may be an underlying instability of the nervous balance, and the fit may be the culmination of constant cortical irritation, still we must think of the greater number of these unfortunates as having potential possibilities, and of being able to fill a useful place in society if given the opportunity. We hear much of the mental deterioration accompanying epilepsy, but a part of this must certainly be due to the depression and feeling of isolation which comes from the belief that in all probability the disease is incurable, by the feeling of inferiority, forced on the epileptic by his associates, and in many cases, by his inability to follow some one of the usual lines of work, and to mingle with his fellow beings. Clark(1) says there is a personality defect, but may it not be true that this backwardness is not fundamental, but similar in many respects to the oversensitiveness of, for example, partially deaf people? History records many individuals of superior mental ability and great accomplishments, who suffered from seizures. Although epileptic seizures are common among subnormal individuals, still the epilepsy must not, in all cases, be regarded as the cause of the subnormal mentality, but rather one evidence of the morbid changes taking place within the brain. The same would be true of seizures occurring as the result of syphilitic infection. Such types, as well as institutional cases, do not come within the scope of this discussion. We say this to emphasize that true idiopathic epilepsy need not in every instance lead to mental deterioration and that many cases, if given proper attention may serve society in some useful capacity.

Since the beginning of time the cause of epilepsy has been the subject of much discussion, and so many causes and cures have been proposed, that attempted explanations of the underlying cause or proposed methods of treatment are regarded with skepticism. While we shall not attempt to give the cause of epilepsy, still we believe that some facts which seem to be related to the general condition, or to the seizures, are worth mentioning. Given an unstable nervous system, any continued irritation, whether toxic or other sort, would certainly make more marked the condition already present. The failure of a great many of these patients to exercise well the excretory functions has in the past caused much attention to be given to the lower bowel particularly. Digestive disturbance in infants, followed by retention of irritating products in the lower bowel, frequently lead to spasm, and a similar condition seems often to hold for adults who suffer from epilepsy. Again, the very fact that removal of foci of infection has relieved or lessened the severity and frequency of seizures, would indicate that at least improvement of the general health has some effect on the number and severity of seizures. We have one such patient in mind (E. S. case history below), and other men have observed the same. Bisgaard and Novig⁽²⁾ of Copenhagen have recently reported on the variation of the ammonia production in sixteen epileptics. Their reports show that the ammonia content of both blood and urine increases to a very high level just preceding a seizure. However, they offer no explanation, other than that it may be on the basis of some endocrine disturbance. In some patients an excessive appetite or a peculiar craving for some unusual kind of food is to be observed in the period just preceding the attack. It might be argued that this is merely a premonitory sign, and one of the evidences that at least a psychic disturbance was under way. If these are merely signs, they are worthy of observation. Peculiar mental traits, such as extreme stubborness, talkativeness, or reticence belong to this same class. Their observation by the patient's friends is desirable.

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*Read before the Nebraska State Medical Assn., Omaha, April 25, 1922.

The first positive warning a patient may have, that an attack is impending, is in the nature of an aura. Aurae are subjective sensations indicating the first cortical disturbance. They vary as widely as do sensations themselves. They also vary in character in different patients, and in the same patient from one period to another. It would be impossible to enumerate the different forms in which aurae occur because of their number; but to the patients they serve as a warning that an attack is coming on. Many patients at times have no such warning, while others, or the same patients at different periods, have a definite aura varying in time from a fraction of second to several minutes. Often a sufficient time is given the patient to enable him to withdraw to privacy or place himself where he will not receive injury. In occasional instances the use of amyl nitrite or an alcoholic will enable the patient to avert an attack.

In discussing types of seizure it is customary to divide them into petit mal and grand mal. The terms apply to the severity of the seizure but the line between them is an arbitrary one. A seizure may vary from a mere break in coordination, or halt in mental or physical activity of the slightest kind, to the severest form of convulsion in which the subject, without warning, is thrown violently to the ground with an explosive outcry, produced by the suddenness and severity of the muscle spasm. Petit mal is not usually accompanied by more than momentary loss of consciousness nor by marked disturbance of cerebration and is not followed by sleep. Still some cases losing consciousness are clear mentally immediately following their seizure. Some cases subjected to severe seizures, losing consciousness for considerable time, suffer no noticeable mental disturbance and go through no period of sleep. Text books state that loss of consciousness must be present, at least, momentarily, else the seizures are not truly epileptic, but the statement of patients who have gone through the tortures of convulsions without loss of consciousness would not seem to indicate that loss of consciousness is essential.

It is in the general management of these patients that we shall make use of the points just discussed. The first essential to the proper treatment of any case, is to secure as far as possible, the confidence and cooperation of the patient. The extent to which this can be secured will depend not only on what can be done for the patient, but how careful attention is given him. This applies particularly if we are to believe that these seizures are at least in part, "psycho-genetic"⁽³⁾ in origin. Clark emphasizes this particularly by saying that reeducation and analysis of the mental substratum is essential. A careful history, inquiring not only into the family history and details of daily living, but determining, either from the patient or his friends, all the conditions prevailing preceding the attack, or seeming in any way to bear some relation to it, is essential. To find in all this mass of details, the one or two essential facts, will require repeated inquiries and constant re-sorting of material at hand. Altogether it will be much like the proverbial "hunting for the needle in the haystack," but a few important details may be worth much. One should know definitely about the habits of living, the dietary, whether or not constipation preceded the attack, whether unusual psychic phenomena were observed either by the patient or his friends, whether disturbed domestic or other social relations have placed increased stress upon the patient.

The next essential to the treatment of any patient is a well worked outline of procedure followed methodically enough to determine just what is the effect of the treatment. Modified by his personal knowledge of conditions, the physician must decide what is best to instruct the patient and his friends in the avoidance of the things which in the individual case apparently stand as causal. The details of such instructions can hardly be outlined, since they vary so widely. But certainly in practically every case the friends must be made to see that it is their attitude which has much to do with the mental attitude of the patient at all times. They should especially avoid making him feel the weight of his infirmity, or feel any sense of inferiority on account of it.

When one comes to the discussion of the medical treatment he is limited entirely to remedies intended to control the seizures. A long list of drugs has been tried out. A few have enjoyed considerable reputation. Since about 1857 the bromides have been the most generally used. Some patients get along very comfortably with the use of bromides with a marked reduction in frequency and severity of seizures. However, the constant use of a dose sufficient in any way to control seizures has a tendency to produce skin disturbance and mental torpor which is even more undesirable than the seizures themselves.

In 1912 luminal, a drug of the barbital group, previously introduced as a hypnotic, was first used for the control of seizures. The drug was first admitted to the New and Non-official Remedy list in 1913 with a recommended dosage of three to five grains with a maximum of twelve grains. In 1913-14 considerable space was given to it in the French and German literature as useful in controlling epileptic seizures. In 1916 Dr. Ball(4) in discussing Dr. Dercum's paper on epilepsy, mentioned its use but feared the danger of habit formation. In 1920 Dr. Julius Grinker(5) Chicago, reported favorably on its use in one hundred cases. Since then Stanton(6), Hill(7) and others have given favorable reports on a number of cases. More recently Fox(3) in England reported more in detail on its action in sixteen young epileptics. Other men have reported less favorably on its use in the severe form in institutional cases, but a study of the literature would seem to indicate that epileptic seizures were part of some general mental disturbance. Such forms could hardly be expected to respond to any extent to drug therapy. We have used it in the last year and a half on about thirty cases. Case histories are reported below. In general its effect is to reduce the severity, as well as the frequency, of seizures. Some patients have gone without attacks for several months who formerly had them at intervals of one or two weeks or even oftener. Most of them do very well on 1½ grains of luminal taken at bedtime, although a few require this amount two or three times a day. A few patients seem to suffer from the hypnotic effect of the drug, but usually in such cases the dosage can be reduced. Some authorities have reported an increase of excitability of patients when placed on this drug, but this does not seem to be common. Very occasionally skin eruptions occurred, but this is rare. Some have feared the danger of habit formation which is probably overestimated. Recently McNerthney(8) has reported the accidental taking of seventy-five grains at one dose with no bad after effects, showing that the toxic dose must be very large. It seems to be generally agreed that practically all patients are more cheerful and more alert mentally than they are under the effect of bromide or without bromide if they suffer fairly frequent seizures.

E. F. Age 15. Female. Family history negative. Past history negative, except for mild attacks of common diseases of childhood.

First seizure occurred at puberty. They were petit mal in type, occurring at intervals of from one day to one month. Mentally she was much depressed and very nervous following the attacks. She had received no benefit from any line of treatment. Eighteen months ago she was placed on 1½ grains of luminal at bedtime. Her mental condition improved greatly and no seizures have occurred, excepting one on a day following the omission of the bedtime dose.

Mrs. B. S. Age 38. Widow. Husband dead of accident. Two children living and well. No miscarriages. No family history of nervous disturbance.

At the age of 30 she began having severe seizures at intervals of two to six weeks. The use of bromides had no effect on the seizures, but did depress the patient and produced marked apathy. In December 1920, she was placed on 1½ grains luminal at bedtime. Has had no seizures since. Mentally she is alert, in fact normal. During the first week a papular eruption occurred, but disappeared in a few days and no other disturbances have occurred since.

Mrs. H. C. Age 44. Married. No living children. Husband, age 46 living and well. Family history negative.

First supposed seizure was probably eclamptic, occurring during delivery. Seizures gradually became more severe, several occurring during a single night. Mental depression was marked without drugs and even more so on bromides. The patient lost all interest in surroundings. She began the use of luminal. three grains daily, about January 1, 1921. During first three months no attacks occurred and during remainder of the year only two. She was more alert than before. The patient drifted from supervision, discontinued use of luminal during a respiratory infection in January 1922, and has suffered frequent severe seizures in the last three months.

This we feel is an example of lack of careful supervision, and we believe on the resumption of luminal treatment, the seizures will be lessened in frequency and severity.

G. E. Age 26. Single. Family history. Father age 62, living and well. Mother age 61, living and well. Two brothers and one sister living and well. No family history of nervous disturbance.

Personal history. As a child enjoyed fair health, but never robust. Fell from barn loft at age of 10. No apparent injury of head. Severe attack of scarlet fever at age of 12.

First epileptic seizures occurring at age 18. were nocturnal. Gradual increase in frequency and severity of seizures. Seizures more severe when dietary and elimination were not closely supervised. Attacks were controlled for short periods by bromides, only to be followed by more severe attacks than before. The loss of mental activity was very marked.

The patient began using three grains luminal daily in fall of 1920, which controlled seizures for two and one half months when four and one half grains were required. For one year one light attack a month occurred. Mentally she is more alert. Physically she is in better condition than ever before.

E. S. Farmer. Age 33. Married. Weight 175 pounds. Height 6 feet. Wife living and well. Three normal children living and well. No family history of nervous disturbances.

Past history. Lung fever at the age of 11, no other severe illness. No injury.

First epileptic seizures were mild in character and occurred at age 27. At end of first year seizures came at intervals of one or two weeks. Patient had been examined by specialists in Kansas City, Mayo's and elsewhere. Aurae exhibited as sense of constriction of throat. Patient began to lose confidence in himself and fear companionship. Seizures were not controlled although of less severity under luminal treatment.

Early in May 1921, we observed that pus could be expressed from tonsils. The tonsils were removed with an increase in weight from 150 to 175 pounds, his normal weight, in one year. No seizures have occurred since tonsillectomy.

This is a case which apparently responded to removal of focus of infection. We mention this as one supposed to be idiopathic, until infected tonsils were observed and removed. Results indicate that it was not true idiopathic, but toxic in origin.

We have recorded here the history of a few cases, some of which are not typical idiopathic ones. These illustrate the fact that it is our duty as family physicians to continue the search for a possible specific cause, for, if in a very limited number we succeed, we have done our patients an inestimable service. Recognizing the fact that any new line of treatment is likely to be overestimated in value, we must admit, that any drug or special care given these patients, followed by, as good or better control, and eliminating the ill effects of the former treatment, is altogether worth while and should merit our most careful consideration.

SUMMARY.

1. Final responsibility for supervision of treatment of the greatest number of epileptics rests with the family physician.
2. The measure of success depends largely on the management of the individual case.
3. Drugs for control of seizures.

Careful management for maintainance of mental and physical health of the patient.

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DISCUSSION.

A. J. Jenison, M. D., Harvard: At this late hour it is hardly appropriate to discuss this paper, and certainly not to criticize it. As for commending it, it commends itself.

I like to listen to a paper that appeals to the general practitioner. There are so many papers offered in this Association that deal with specialties or laboratory technique, of almost no interest or assistance to the general practitioner. This is not said to criticize those papers nor the Program Committee, because we country practitioners, with a few noted exceptions, are very modest fellows, and it is almost utterly impossible for the Program Committee to get a general practitioner to submit a paper to this Association.

Dr. Davis last night suggested one thing this Association should do is to get all physicians in the state helpfully interested in the Association. If you want to interest all the physicians—and the country practitioners are largely in the majority—you cannot do a better job than to get a program pretty well filled up with papers of this type that deal with something the general practitioner has to do with every day, and with problems which are of direct interest to him every moment of the time. Because do what we may, there are many of these cases that do not get along well with you. We have them constantly on hand. I want to commend the doctor's paper in this respect. He says we should be constantly on the lookout for the cause.

I do not quite agree with him as to its being a disease entity. We find by post mortem and in other ways many different pathological states which seem to be causative of this nerve storm we call epilepsy. For that reason I can hardly think of it as an entity.

The term "idiopathic" epilepsy is paradoxical. You do not think of epilepsy occurring without a cause. We hope some day that word "idiopathic" will no longer be applied to this disease.

I want to emphasize one more thought the doctor brings out, and that is the interest of the general practitioner in this class of cases. We always have these poor unfortunate people with us, and we get tired of seeing them. We are apt to neglect and lose interest in these cases. But just put yourself in the place of the parents or other guardians of that patient and see how they must be with that patient constantly, year after year; and certainly it belongs to us to do everything we can with all the patience imaginable to help these people out in every way possible.

I agree with Dr. Birdsall that the bromide treatment of epilepsy is unsatisfactory. I did not used to know any other way.

George Neuhaus, M. D., Omaha: I want to compliment Dr. Birdsall on his paper, because the subject of treatment of epilepsy is very important, but frequently the patient is not given the careful consideration which he should have. He is frequently given a prescription and told to take it and report again in a month.

No one would expect a case of tuberculosis to receive such scant attention and show improvement. The patient with epilepsy requires as much care and consideration of his case, as do our tuberculous patients. The entire situation must be gone over carefully and not only the physical, but also the psychological factors which frequently enter into the picture.

RAT-BITE FEVER.

Max Emmert, M. D., Omaha, Neb.

The occurrence of rat-bite fever in this country is comparatively rare so I feel justified in reporting a single case.

In 1916 there had been reported 81 cases in the United States. Undoubtedly many cases have occurred which have not been reported. As far as I know no case has been reported from Nebraska, though Drs. Stokes and Greenberg treated a case in Omaha several years ago.

The frequency of a mixed infection with this type of injury has made it rather difficult to establish a definite clinical picture of this disease, but a sufficient number of cases have been collected to so establish it. For this we are indebted largely to the Japanese authorities.

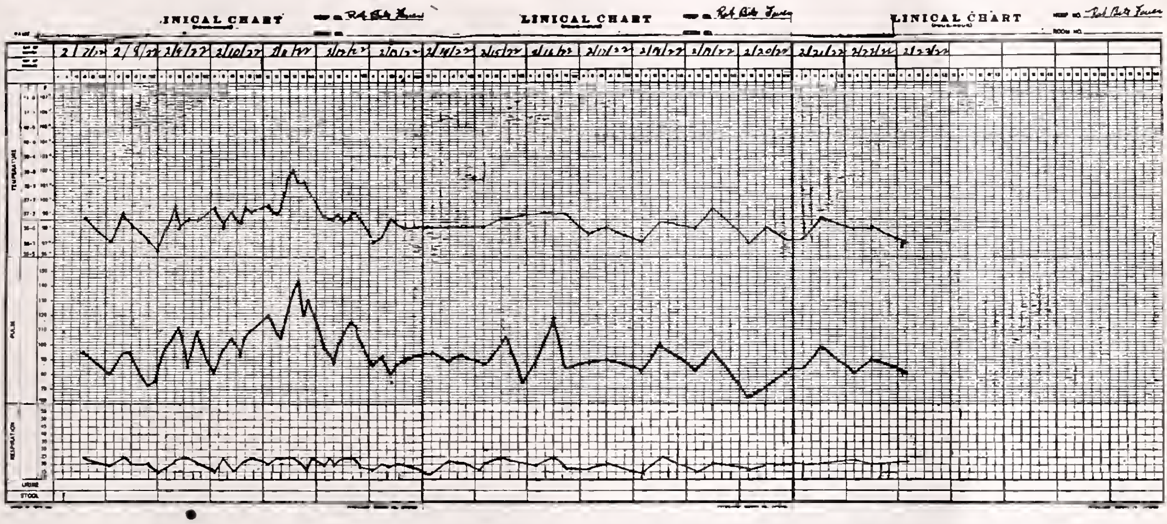
A brief resume of the outstanding features of this disease as advanced by Tyzzer is as follows.

"Definition—Rat-bite fever is an infectious disease following the bite of a rat, or, more rarely, the bite of some animal preying upon rats, as the cat, the ferret, the weasel. It is associated with fever, usually intermittent in type, and a characteristic exanthem. The disease responds promptly to salvarsan.

Pathology—No characteristic pathological changes have been proven.

Symptomatology—Local inflammation occurs about the site of the bite after a definite period of incubation (of from 10-22 days or longer).

There is swelling, redening and tenderness. Abscess formation does not occur although necrosis and gangrene are said to appear in certain instances. In Tileston's case, which is accepted as characteristic by Japanese investigators, the onset of the disease occurred about a week following the bite of a rat and was marked by dysphagia in addition to vomiting, fever and headache. Pain and swelling of the injured foot appeared twenty three days after the bite. The fever ran an intermittent course, the paroxysm occurring regularly at six day intervals. During the paroxysm there was a polynuclear leucocytosis, the white count reaching 24,000 on one occasion. There was a deficiency of hemoglobin (58 per cent) and a low red count. At the time of the third paroxysm a copious rash was observed. This was macular in type and consisted of circular, slightly elevated, sharply marginated spots of bluish red color and measuring from 1-3 cm. in diameter. These spots faded centrally in the interval but never completely disappeared, and brightened with each succeeding paroxysm. The eruption was distributed over the forehead, neck, back, chest, arms and thighs. Swelling of the inguinal lymph glands on the affected side was also noted.



Tileston lays emphasis on the appearance of erythema about the points proximal to the bitten part.

Bacteriology — Schottmuller isolated repeatedly in successive blood cultures a streptothrix to which he applied the name streptothrix muris ratti from a case of fever following rat-bite.

A considerable number of Japanese investigators have found in the macules excised during life and in the lymph nodes, a spirochete to which the name spirochaeta morsus muris has been applied.

Treatment—Consists of the cauterization of the bite. Miyake (1900) recommended strong phenol or actual cautery. The disease responds readily to injections of salvarsan as Hath (1912) has shown. Cases have also recovered under treatment with mercury."

Case Report. A. L. Male—Age 10, was referred to me by Dr. P. James of Elkhorn, Iowa, on February 7, 1922, with the following history.

P. H. Father admitted luetic infection two years prior to birth of the patient. Was treated one year. Apart from a sluggish mentality (the patient being in the second grade at school) his general health has always been good.

P. I. In September, 1921, the patient was bitten in the left hand by a rat. This was painted immediately with iodine. Condition apparently normal in one week.. Three weeks after the injury the hand swelled and 3-4 days later he developed a fever. The hand was poulticed but no abscess formed. Axillary glands on affected side became enlarged. The swelling of the hand gradually receded and completely disappeared in four weeks. During this period "very small red spots with induration the size of a finger nail" were noticed on the arm. These did not form an abscess but gradually disappeared. Since that time the patient has had intermittent attacks of sickness every four days during which the temperature would range from 101°-103½° and last 1-1½ days. Just prior to these attacks the appetite was very good. During the attacks the patient is very drowsy and complains of thirst and headache. The interim between attacks has gradually decreased until at present they occur every seven days. The range of temperature is not so high at present. Patient is losing weight.

Physical examination.

Head—Facies dull.

Mouth—Incisor teeth upper third very thin and uneven. Small nodules on canines.

Throat—Normal.

Glands—Numerous cervical glands were palpable. Epitrochlear large—Inguinal large—Auxillary and sub-mammary palpable.

Thorax—Heart and lungs negative.

Abdomen—Rather prominent especially below umbilicus. Spleen not palpable. Reflexes—Knee jerks very active.

Left hand (site of injury) slightly atrophied; fine scar in the first metacarpal space.

Blood Examination — 2/11/22 Dr. Wohl.

"Erythrocytes per cumm.........................3,200,000

Leucocytes per cumm	15,200
Hemoglobin	68%
Color Index	1%

Nature of the red blood cells:

Poikilocytosis moderate, and moderate anisocytosis. Blood culture. Proved sterile after end of 72 hours.

Wassermann reaction proved positive what we designate as two plus strong, however, blood serum was of anti-complimentary nature.

The histological examination of the lymph gland showed it to be that of a subacute lymphadenitis.

Tissue stained by Levaditi method failed to show the presence of any spirochaetae."

Our diagnosis of this case was rat-bite fever and congenital lues. As we desired to observe a paroxysm in this case no treatment was instituted until we had a definite paroxysm which occurred on Feb. 11, 1922. on which day Dr. Wohl removed the blood for examination. The following notation was made 2/11/22—7:30 P. M. regarding the skin exanthem.

Area size of split pea, firm, slightly elevated above surface, lighter in color than surrounding area which is erythematous in type varying in size from one to two and a half centimeters in diameter. Margins irregular. Color fades on pressure and returns immediately upon release of pressure. Distribution cervical—over sterno-cleido-mastoid muscles. Upper back, right abdomen small area right leg. Several areas of coalesced spots on the back. Give one the impression of an insect bite. Patient complains of itching. No trace of the eruption was visible the following morning.

On February 13, two days following the attack, one of the inguinal lymph glands was removed under local anaesthesia, the pathology of which is covered in Dr. Wohl's report.

February 15—Treatment was started by Dr. Warren Thompson with neosalvarsan and daily inunctions of mercurial ointment.

Three injections of neosalvarsan were given after which the patient returned home with instructions to continue the inunctions of mercury. He returned March 22 for three injections of arsphenamine. This patient has not suffered from an attack since February 11th and the last report received May 22nd states that "he is feeling fine and going to school every day."

I wish to express my appreciation to Dr. Warren Thompson and Dr. Michael Wohl for their interest and assistance in handling this case.

DIPHTHERIA FOLLOWING TONSILLECTOMY.*

F. L. Secoy, M. D., Sioux City, Iowa.

My reasons for reporting this case are two. First—Diphtheria immediately following tonsillectomy is apparently a rare complication. Second—Its early recognition and energetic treatment is imperative if a tragedy is to be averted.

A review of the literature back to 1906 reveals only a few cases of diphtheria following the tonsil operation. In an article by Dr. F. Kobrock, Archives of Laryngology and Rhinology, Berlin, 1906, the case of a child is cited who had been four weeks in a part of the hospital where no diphtheria had occurred. Tonsillectomy was performed and two days following cultures were positive for diphtheria. Temperature ranged high and an abscess formed on the posterior-pharyngeal wall. This healed in a few days and in three weeks the child was dismissed cured.

Dr. C. McClelland, in the Journal of the Michigan State Medical Society, October, 1921, reports the case of a girl eight years old who had her tonsils and adenoids removed November 1st, 1919, and five days later developed some nausea and spit up some blood. The child continued very ill for another five days when, the report states, "Nasal and pharyngeal diphtheria covering tonsillar fossa, anterior pillars, and extending to midline of uvula was found;" typical stridor was present and the culture was reported positive.

Dr. J. A. Vitor in the Archives of Pediatrics, November, 1920, in reporting on five hundred consecutive cases of tonsilo-adenoidectomy mentions one case of diphtheria following operation with an uneventful recovery.

Dr. J. Zaborsky, in the Interstate Medical Journal, January, 1919, mentions in the course of his summary of one hundred fifty cases of tonsillo-adenoidectomy in children, the occurrence of three cases of diphtheria following the operation.

Dr. Albert D. Kaiser, in the Journal of the American Medical Association June, 1922, reporting a series of five hundred cases, mentions the fact that diphtheria developed in seven children after they had returned home, and that three out of the seven died because the disease had been recognized late. Just below this citation the article states that five children out of the ten thousand operated on developed a lung abscess, so probably the severe cases of diphtheria mentioned were also out of the ten thousand which of course cuts down the frequency of this complication quite markedly.

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*Read before the nineteenth semi-annual session of the Sioux Valley Eye and Ear Academy, Omaha, July 11th, 1922.

We may safely conclude from the above cited articles that diphtheria following tonsillectomy is a rather rare complication. From other articles reporting only tonsillectomies in known diphtheria carriers, there are apparently no cases of the disease following the operation.

Personal: In my own experience which covers a period of eleven years this is the first and only case of diphtheria immediately following the tonsil operation I have seen.

Case Report: Mrs. T. Age 50; referred for tonsillectomy. Complained of rather frequent attacks of sore throat extending over a period of many years. The individual attacks usually lasted from three days to a week during which time she would use some gargle and soon get well. Following these attacks no other members of the family were similarly afflicted. No doctor ever said she had diphtheria or ever mentioned the presence of a membrane in her throat. No child has ever had diphtheria.

Examination: April 21st, 1922. Mouth is "adentulous." Both anterior pillars have a dull heavy red streak extending the whole length of the pillar and about four or five mm. wide. Tonsils rather large for one of her years. On pressure the crypts exude a thin liquid pus and caseous material. No membrane.

Diagnosis: Chronic suppurative tonsillitis. Tonsillectomy advised.

Operation: A local tonsillectomy was performed April 22nd, 1922, 10 a. m. Using a new suction dissector no fingers were introduced into her mouth. Nothing out of the usual happened during the operation and the patient was returned to bed in good condition.

The next morning the patient was up and dressed waiting for me to examine the throat so she could go home. The tonsil wounds presented the same whitish membrane all other throats do at this time, consequently she was discharged. That same evening the daughter called to tell me her mother was suffering considerable pain in her throat, and that the outside of her neck seemed to be swollen. I suggested a hot bag and two hours later she was reported to be much easier. The following morning the same complaint, very sore throat and a swelling on the outside of the neck. I saw her at her home at noon. She was sitting up in bed smiling and apparently not suffering much. The left upper cervical region was slightly swollen. The tonsil wounds were still covered with the usual whitish membrane. No edema of the uvula or any swelling present inside of her mouth, throat or pharynx. I applied tannic acid and glycerine solution liberally to both sides. No more report until the following morning when the daughter said the pain was very intense and the outside of the neck was greatly swollen. This was the third day. I again visited her and found the left side of the neck decidedly swollen. The tonsillar wounds were now covered with a thick yellowish membrane which was quite solid and ended every where at the edge of the mucous membrane. A peculiar odor was very noticeable. My silent diagnosis was diphtheria. She was removed to the hospital and smears and cultures taken. The smears showed practically a pure culture of the Klebs-Loeffler bacillus. During the short time between her re-entry into the hospital and the positive report from the smears, the outside of her neck puffed up at least a half an inch and a definite laryngeal stridor developed. The left side of her soft palate puffed up until her family physician was very positive we were only dealing with a peritonsillar abscess and if the swollen area were incised we would be rewarded by a free flow of pus and a quick recovery. Shortly came the positive report from the laboratory and the diagnosis was settled. She was given 40,00 units immediately. She was subsequently given two 20,000 unit doses and after a two weeks' illness was released by negative cultures.

Regarding Treatment in Cases of This Type: Antitoxin is of course the specific and should be given in massive doses rather than small hesitating doses. In adults from 60,000 to 80,000 units should be given immediately, and another 60,000 units in twelve to twenty four hours with even a third 60,000 units in the following twenty four hours providing the membrane is not rapidly diminishing in size by that time. Severe reactions do not occur any more frequently following massive doses than following smaller doses, and the mortality rate is much lower using large doses than it is using small ones.

For the elimination of carriers a douche of acriflavine is being highly recommended. With the advent of the Shick test to determine the susceptibility of the individual and the production of a life time active immunity through the toxin, antitoxin solution, diphtheria ought to be as scarce in the future as typhoid fever is at present.

THE DIAGNOSIS AND TREATMENT OF PYELITIS.*

John M. Mayhew, M. D., A. M., F. A. C. P. Arthur L. Smith, M. D., A. B., M. Di., Lincoln, Neb.

Since pyelitis and its associated pathological conditions are often overlooked, many useless operations are performed on the appendix, biliary apparatus, and female organs. To the chagrin of the surgeon, the symptoms often return and the next operation is to "break up adhesions." Finally some one is consulted who investigates the genitourinary tract and the true cause of the pain is found.

We believe, no matter what the disease, that the patient should have a careful complete examination and then the special areas can be investigated if necessary.

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*Read before the Johnson County Medical Society, March 15, 1922.

Only recently, to aid in bodily investigations, has there been added three diagnostic agencies to reshape our knowledge of the abdominal contents. These are the Roentgen ray, the ureteral catheterizing and operating cystoscope and the duodenal tube. So illuminating and helpful have these agencies proven in the effort to diagnose accurately the hidden pathological conditions of the abdominal organs that no one is justified in employing "the hit or miss" tactics.

The cystoscope and Roentgen ray must be used in conjunction for there are many abnormal conditions in this area which are not visualized by means of the X ray alone. Some of these are pyelitis, ureteral strictures, kinks of the ureter, pyelonephritis, pyonephrosis, hydronephrosis, hydroureter, and about twenty per cent of the calculi. Before any organ is incriminated all available diagnostic means should be employed and the evidence carefully weighed. Of course this takes time and special workers but in the end, if our experience in the past is any guide, the patient is saved time, money, needless pain, operations and reoperations.

The symptoms and signs of pyelitis and its causative factors are protean in character and may similate practically those of any pathological organ in the abdomen. The principal mistaken diagnoses, when pyelitis and its associated troubles are the true cause of abdominal pain, are appendicitis, abnormal conditions of the female organs, of the biliary apparatus, of the duodenum and stomach, and finally "adhesions" are incriminated in those who unfortunately have been operated upon.

The common etiological factors in pyelitis are:

1. Remote infections.
2. Constipation.
3. Ureteral calculus.
4. Pelvic calculus.
5. Infection and associated abnormalities lower in the genitourinary tract.
6. Ureteral angulations.
7. Ureteral strictures.
   a. Intrinsic.
   b. Extrinsic.
8. Nephroptosis.
9. Neoplasms of the kidney.

The common complications are:

1. Hydronephrosis.
2. Pyonephrosis.
3. Pyelonephritis.
4. Perinephritic abscess.
5. Destruction of kidney tissue.
6. Hydroureter.
7. Cystitis.

Any pathologic bacterium may be the active cause of the infection. In our experience, the bacillus coli communis is the invading organism in a large percentage of these cases.

The diagnosis of pyelitis rests upon physical, X ray and cystoscopic findings. The exact condition present, can be accurately diagnosed only by taking in conjunction the findings of these three. Either method alone would be of little definite value. The procedure, omitting details, should be about as follows:

First, history and complete physical examination.

Second, X ray of the abdomen before cystoscopic examination.

Third, cystoscopic examination and then ureteral catheterization, with emphasis placed upon the following.

a. Resistance or obstruction to the passage of the ureteral catheter.
b. Urine is collected from each kidney and examined.
c. The rate and rhythm of the urinary excretion from each kidney.
d. Capacity of each pelvis.
e. Percentage of excretion of phenolsulphonephthalein from each kidney.
f. Roentgenograph with ureteral catheters in place.
g. Roentgenograph after injection of fifteen per cent sodium iodide into the ureter and pelvis.

If pyelitis is present, the urine will contain pus cells, organisms and a trace of albumin, the flow is often decreased, the normal rhythm is often absent, and the phenolsulphonephthalein excretion may be reduced.

The treatment, giving us the best results, is about as follows:

1. All infections, no matter how remote, are eliminated.
2. The bowels must be properly regulated.
3. All local associated pathological conditions must be rectified; for example, calculi must be removed, strictures dilated, abnormalities lower in the geni-

tourinary tract corrected and ptosed kidneys properly anchored, first by medical and later, if necessary, by surgical means.

4. Large amounts of water should be taken by mouth and the reaction of the urine changed every ten days.
5. The pelvis of the kidney should be catheterized, drained, lavaged with boric acid solution, and then injected with one per cent silver nitrate solution one to three times a week.

The following cases will illustrate the value of the above method of diagnosis and treatment of pyelitis.

I. Miss S. Age 25 years. (October 4, 1920.)—An appendectomy was done four years ago for pain and rigidity in the right lower abdomen. However, the same pain has continued intermittently, and she has been advised adhesions are present and an operation is necessary.

Examination reveals a right pyelitis, a calculus in the pelvis of right kidney and lowered function of the same kidney.

Pelvic lavage was instituted until the infection disappeared, and then the stone was removed through the back by surgical means. Six months later a small ureteral calculus was made to pass by ureteral injection and by dilatation through the use of the Bradford-Lewis dilator. There has been no recurrence of the pain during the last ten months and the urinary tract is perfectly normal. This illustrates a case in which the characteristic appendicitis symptoms were not relieved by appendectomy. The true cause of the abdominal pain was due to a stone in the pelvis and later one in the ureter. The pain disappeared after correction of the abnormalities in the ureter and pelvis.

II. Mrs. F. 34 years old. (February 21, 1921)—Pain in left side of the abdomen is the predominating symptom. It has never been absent during the past five years. Five abdominal operations have been performed during this period, but the pain continues unchanged. A surgeon had finally decided to remove the left kidney because a roentgenologist reported this organ as "much enlarged." Our examination revealed a perfectly normal left kidney but a pyonephrosis of the right kidney. The right ureter showed a stricture and an angulation. The right pelvis was dilated, the capacity being fifty cubic centimeters. The function of the right kidney was practically nil. The pain in the left side disappeared after the second treatment of the right ureter and pelvis. This was a case of referred pain and the left kidney was enlarged due to the necessity of assuming the function of the almost totally destroyed right kidney. This illustrates the fact that pain, tenderness, and enlargement are not unusual in a normal kidney which must double its excretory function. Had the left kidney been removed, because of the pain and enlargement, the patient would have died of uremia in a few days.

III. Mrs. F. 38 years. (November 22, 1920.)—Patient complains of pain in upper right abdomen, shortness of breath and sharp pains in the heart region. A diagnosis of gallstones had been made by a surgeon and operation was advised. The general examination revealed a peridental infection and a myocarditis. Drainage of the gallbladder by the Lyon's method showed normal "A," "B" and "C" pile. The roentgenograph showed no shadows in the gallbladder region and the duodenal curve was normal by the Palefski technique. The urine from the right kidney contained a large number of pus cells, a trace of albumin and colon bacilli. The capacity of the pelvis was increased to thirty five cubic centimeters. The normal rhythm of the ureteral flow was absent and the function reduced to one third normal. Pyelography showed a greatly dilated pelvis with a partial destruction of the secondary calices. The diagnosis of the kidney condition was a first degree pyonephrosis. The treatment consisted in extracting the offending tooth, she was kept in bed until the heart function was normal, and the kidney condition was treated as outlined in this paper. No discoverable abnormality is now present. This patient was saved an unnecessary operation on the gallbladder and the real cause of her pain was discovered through the employment of the above named diagnostic instruments of precision.

Remarks: We have attempted to present to you the value of a complete general examination in abdominal abnormalities and the necessity of employing diagnostic instruments of precision in the investigation of the organs contained in this area.

It is true this method takes more time, requires the efforts of special workers and the initial cost is greater to the patient than the haphazard methods often employed.

We believe, however, this method saves the patient money, pain and time, by preventing useless operations and reoperations.

PRIMARY ACTINOMYCOSIS OF SKIN.

Surgical solution of chlorinated soda (Dakin's solution) gave prompt results in the case cited by M. J. Baskin, Alliance, Neb. (Journal A. M. A., May 6, 1922), after the administration of potassium iodid, internally, and boric acid, locally, had failed to give results. The lesion is covered with gauze which is kept constantly saturated with the solution. At intervals, moist heat is applied over the gauze. This results in the decomposition of the solution with the liberation of free chlorin, and to this Baskin attributes his results.

OBSERVATION OF THE DISTRIBUTION OF VITAMIN B.

The researches made by Samuel R. Damon, Baltimore (Journal A. M. A., July 8, 1922), demonstrated that commercial beef extract and peptone are devoid of the water soluble vitamin B.

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THE JOURNAL, THE EDITOR AND PUBLIC POLICY.

In the political activities of organized medicine in this state the editor of the Nebraska State Medical Journal occupies an unique position which, it seems only fair he should make clear to the readers at this time.

Under the By-Laws there is created a Committee on Public Policy and Legislation and also a Campaign Committee. Any activities of the association coming under the above heads must or should originate with one of these committees and should be directed by the committee to whose jurisdiction it happens to belong. It is not for the editor, the publication board or the Journal to launch and conduct a campaign without direction from constituted authority.

The Council with considerable zeal had printed and broadcasted Dr. Fouts' Chairman's Address, "The Field of Operation," in advance of its publication in the Journal, June first. The motives of the Council cannot be questioned. Considerable correspondence has reached this office regretting the stand taken by Dr. Fouts and by the Councilors in broadcasting the address, and the lay press has discussed the matter from several angles. The editor of the Journal can take no part in this controversy, although the columns of the Journal are open for terse, pointed and moderate discussion of the issue presented.

That medical men, as individuals and as organized bodies, should be interested in aspiring politicians and in what they stand for, and in policies affecting the science and art of medicine is undeniably and fundamentally correct.

The open question seems to be that of a settled policy.

Fifteen years ago in a public address the writer said: "It may well be doubted whether attempted legislation against quacks and irregulars and the agitation consequent upon such attempts, are productive of any good to the profession or to the public sought to be protected thereby * * * *. It is doubtful if the well equipped physician of modern methods has anything to fear from any number of irregulars, quacks and charlatans * * * *.

We are not the guardians of the laity's purse, nor the sensekeepers of the community."

To this doctrine, as an individual, he subscribes today.

DR. MARGARET W. KOENIG TO MAKE HEALTH SURVEY OF RURAL TENNESSEE.

Dr. Margaret W. Koenig, Lincoln, has been appointed by the Children's Bureau under the Sheppard-Towner Act to make a study of health conditions in rural Tennessee. Her appointment is the second by the Children's Bureau under the Sheppard-Towner Act. She will travel through Tennessee in a white "health truck" with chauffeur and nurse making a study of health conditions and advising remedies.

The importance of this appointment of Dr. Koenig deserves passing comment on her former activities.

Dr. Margaret W. Koenig is a graduate of Creighton Medical College, 1903, and was in private practice in Omaha 7 years. She did volunteer unpaid public health work in Omaha for four years under the Y. W. C. A., Visiting Nurses' Association and the Salvation Army. She was a social worker in the Children's Welfare Department of the Lincoln Public Schools for five years; made a sanitary inspection for the city of Lincoln, taking six months, without pay; made a preliminary social survey looking to the establishment of municipal play grounds, 1916; and a social survey of housing conditions in Lincoln, 1917, both under the Department of

Sociology, Nebraska State University; devoted April and May, 1918, to work in the schools in connection with Children's Year Campaign, inaugurated by the Children's Bureau.

Several years ago under the auspices of the Red Cross she made a tuberculosis survey among the Winnebago Indians and last year published the result of her studies in "Tuberculosis Among The Nebraska Winnebago."

THE THEORY OF RELATIVITY.

To a symposium on this subject Professor Albert Einstein himself contributes an article on the development of his theory in which he writes:

"The development of the special theory of relativity consists of two main steps, namely the adaptation of the space-time metrics' to Maxwell's electro-dynamics, and an adaptation of the rest of physics to that altered space-time 'metrics' The first of these processes yields the relativity of simultaneity, the influence of motion on measuring-rods and clocks a modification of kinematics, and in particular a new theorem of addition of velocities. The second process supplies us with a modification of Newton's law of moton for large velocities, together with information of fundamental importance on the nature of inertial mass.

It was found that inertia is not a fundamental property of matter, nor, indeed, an irreducible magnitude, but a property of energy. If an amount of energy be given to a body, the inertial mass of the body increases by an amount E/2, where c is the velocity of light in vacuo. On the other hand, a body of mass m is to be regarded as a store of energy of magnitude mc^2.

Furthermore, it was soon found impossible to link up the science of gravitation with the special theory of relativity in a natural manner. In this connection I was struck by the fact that the force of gravitation possesses a fundamental property, which distinguishes it from electromagnetic forces. All bodies fall in a gravitational field with the same acceleration, or—what is only another formulation of the same fact—the gravitational and inertial masses of a body are numerically equal to each other. This numerical equality suggests identity in character. Can gravitation and inertia be identical? This question leads directly to the General Theory of Relativity. Is it not possible for me to regard the earth as free from rotation, if I conceive of the centrifugal force, which acts on all bodies at rest relatively to the earth, as being a "real" field of gravitation, or part of such a field? If this idea can be carried out, then we shall have proved in very truth the identity of gravitation and inertia. For the same property which is regarded as INERTIA from the point of view of a system not taking part in the rotation can be interpreted as GRAVITATION when considered with respect to a system that shares the rotation.

According to Newton, this interpretion is impossible, because by Newton's law the centrifugal field can not be regarded as being produced by matter, and because in Newton's theory there is no place for a 'real' field of the 'Koriolis-field' type. But perhaps Newton's law of field could be replaced by another that fits in with the field which holds with respect to a 'rotating' system of coordinates? My conviction of the identity of inertial and gravitational mass aroused within me the feeling of absolute confidence in the correctness of this interpretation. In this connection I gained encouragement from the following idea. We are familiar with the "apparent" fields which are valid relatively to systems of coordinates possessing arbitrary motion with respect to an inertial system. With the aid of these special fields we should be able to study the law which is satisfied in general by gravitational fields."

We also quote from another source Professor Einstein's words:

"The great attraction of the theory is its logical consistency. If any deduction from it should prove untenable, it must be given up. A modification of it seems impossible without destruction of the whole. No one must think that Newton's great creation can be overthrown in any real sense by this or any other theory. His clear and wide ideas will for ever retain their significance as the foundation on which our modern conceptions of physics have been built."

And the statement from C. E. Mendenhalls Review of Physics in Appleton's American Year Book for 1920, Page 660:

"The greatest general interest attaches to the results of observations made at the time of the total solar eclipse on May 29 to test Einstein's theory of gravitation (see also XXI, Astronomy).

This theory (see Eddington, "Report on

Relativity Theory of Gravitation," Trans. London Phys. Soc., 1918) predicted a radical displacement of stars seen close to the sun's limb amounting to 1.74 seconds of arc. A displacement of half this amount was computed by Eddington by attributing mass to a light ray and working out the effect of the Newton attraction of the sun in altering the path of a ray. The announcement at a meeting of the Royal Society in November that the observations agreed with Einstein's prediction was pronounced by some of the most important advance in the knowledge of gravitation since Newton's time. On the other hand, others maintain that it has yet to be proved that the observed displacements are due to gravitation and not to the refraction of a solar atmosphere of unexpected extent. A third possibility is that they are due to a hitherto unknown interelation of gravitational and electrical fields but do not constitute a confirmation of the relativity hypothesis. Although no one at present understands the full significance of the results, they constitute, if further observations confirm them, a most important addition to knowledge."

—A. S. V. Mansfelde.

THERAPEUTIC USES OF X RAYS OTHER THAN ON MALIGNANT GROWTHS.

The prominent role the X rays and radium have played in the treatment of cancer, has caused some of the other biological and chemical effects of the X rays to be neglected in their application to diseased conditions.

Some of the effects of the X rays other than to kill cancerous cells are:

First—To destroy lymphoid cells.

Second—To relieve pain.

Third—To relax spastic muscular action.

The first effects, namely, the destruction of lymphoid tissue has been taken advantage of to a large extent in the treatment of cervical adenitis. More recently the first effect has come into prominence like a sky rocket in the treatment of diseased tonsils.

The first, second, and third effects of the X rays are applicable in the treatment of appendicitis.

The order in which all three of these effects are the most pleasing and satisfactory to the patient, are:

1st.—The relief of pain.

2nd.—The relaxation of the spastic condition of the caecal orifice of the appendix, which allows drainage to take place normally.

3rd.—The obliteration of the lumen of the appendix by destruction of the lymphoid cells, thus causing atrophy of the appendix.

—W. L. Ross.

MEDICAL CARE FOR DISABLED VETERANS.

In the editorial column of the last issue of the Journal, attention was called to the work of the United States Veterans' Bureau, and it was pointed out that fundamentally this work was of a medical character and therefore should be of primary interest to the medical profession. The Ninth District of the U. S. Veterans' Bureau includes the states of Missouri, Iowa, Kansas and Nebraska, the headquarters of the District being located at 6801 Delmar Blvd., St. Louis, Mo. Although the conduction of this work requires a very large organization, certain phases of the work can be considered separately for the purpose of clearness. It should be understood that the federal organization, the U. S. Veterans' Bureau, cannot accomplish to the highest degree its purpose of maintaining the welfare of the disabled veteran without the full co-operation of other agencies interested in similar purposes. Such co-operation is being freely given and there has been, as an example of this, recently organized a District Rehabilitation Committee acting with the National Rehabilitation Committee of the American Legion and this committee is now investigating the facilities for and conduct of rehabilitation work in the Ninth District of the U. S. Veterans' Bureau. The committee members and their respective fields of inquiry are: Dr. Fred W. Bailey, General Medical and Surgical; Dr. H. Unterberg, Neuropsychiatric; Dr. E. L. Opie, Tuberculosis; Prof. J. L. Van Ornumparen, Washington University; Vocational Training Interests and G. H. W. Rauschkolb, Compensation and Insurance. General members of the committee are: Dan F. Steck, Iowa; Wilber S. Metcalf, Kansas; Clinton Brome, Nebraska, and Dr. H. F. Parker, Missouri. The chairman is H. D. McBride, of St. Louis, and Robert Burkham, St. Louis, is vice chairman.

At the present time we have available the preliminary report of the committee, which aims to render an exact and comprehensive report of the conditions existing in the Ninth District regarding the medical treatment afforded veterans and the facilities available for hospitalization and clinic treatment.

The committee finds that there is at present but one government owned hospital in the Ninth District, that being the U. S. Veterans' Hospital No. 57 at Knoxville, Iowa, which has a capacity of 170 beds and is used wholly for the care of veterans with psychoses. This institution was formerly a state inebriate asylum.

There are four hospitals which are leased outright by the government, as follows: U. S. Veterans' Hospital No. 35, at St. Louis. This was formerly an almshouse and the building and facilities are declared by the committee to be inadequate for the proper medical treatment of any type of case. Its capacity is 650 beds and all types of cases are at present housed in it, including medical, surgical, tuberculosis and neuropsychiatric. U. S. Veterans' Hospital No. 67, at Kansas City, Mo. This was formerly a general hospital with capacity of 130 beds, and has good facilities for medical and surgical cases and for the observation of suspected tuberculosis. U. S. Veterans' Hospital No. 75, at Colfax, Iowa. This was formerly a resort hotel with capacity of 200 beds. Facilities are only fair for medical and surgical cases. The building is a fire trap and the facilities are not in line with the requirements of modern ideas of hospital treatment. The National Military Home, Kansas, as the name indicates, is a home for aged, disabled volunteer soldiers, but arrangement has been made for 200 beds for the use of the U. S. Veterans' Bureau. The medical facilities and personnel at this institution do not warant the hospitalization of patients in need of active medical treatment.

All other hospital facilities are provided by contract with existing institutions, the government turning its disabled veteran patients over to the regular personnel of these institutions, with no direct supervision of the patients. The following are a few of the hospitals now under contract with the government in the Ninth District:

For general medical and surgical purposes there are the Iowa Lutheran Hospital, Des Moines, Iowa; the Mercy Hospital, Iowa City, Iowa; Wesley Hospital, Wichita, Kansas; Lincoln Sanatorium, Lincoln, Neb.; Swedish Hospital, Omaha, Neb. For tuberculosis cases there are the State Sanatorium, Oakdale, Iowa; State Sanatorium, Norton, Kansas; Jasper County Hospital, Webb City, Mo.; Mt. St. Rose Sanatorium, St. Louis, Mo.; State Sanatorium, Mt. Vernon, Mo. For neuropsychiatric cases there are the Cherokee State Hospital, Cherokee, Iowa; Independence State Hospital, Independence, Iowa; Topeka State Hospital, Topeka, Kansas; Punton Sanatorium, Kansas City, Mo.; State Hospital No. 1, Fulton, Mo.; State Hospital No. 2, St. Joseph, Mo.; State Hospital No. 3, Nevada, Mo.; State Hospital No. 4, Farmington, Mo.; St. Louis City Sanatorium, St. Louis, Mo.; Lincoln State Hospital, Lincoln, Neb.; Still-Hilldreth Sanatorium, Macon, Mo.

The committee finds that the total bed capacity for the Ninth District may be divided as follows: Government owned, 172; government leased, 1,176; contract, 319.

Later reports to be issued on the work of this committee will concern the adequacy of the facilities mentioned and will make recommendations for changes which seem advisable. Such recommendations will be referred to the National Rehabilitation Committee of the American Legion and to the manager of the Ninth District U. S. Veterans' Bureau for action.

EDITORIAL PARAGRAPHS.

Don't they? "Hundreds of physicians and surgeons do not sterilize their instruments."

The next annual meeting of the American Medical Association will be at San Francisco, June 25, 30, 1923.

But one Homeopathic medical college remains in this country, at Philadelphia; but one Eclectic medical college remains in operation, at Cincinnati.

Speaking about mixing medical society meeting with golf,—this is the way it works out: The common member—he without the golf bug—has no rights that the golfist member is bound to respect!

Adjt. Gen. H. J. Paul has announced that he has orders from the war department to recruit a medical regiment in Nebraska. This will comprise medical, surgical, dental, veterinary, pharmaceutical, laboratory and nurses sections.

Surgeon General Ireland, has authorized the formation by the Creighton University College of Medicine, of a general hospital unit to be officialy known as General Hospital No. 55. The new unit will be planned to operate with a personnel of 400, including nurses, pharmacists orderlies, cooks, bakers, and etc.

It has been definitely determined by Baerg, (University of Arkansas), that the bite of the tarantula is relatively no more poisonous than the sting of the bee. Fatalities have followed bee stings, very rarely, and the same is true of the tarantula bite.

As a profession we do not take enough interest in politics. Few doctors aspire to office under the government. Those who do aspire are not always successful. The results of the July primary indicate that Dr. Fred Hoffmeister, Imperial and Dr. C. P. Fall, Beatrice, candidates for congress, were not nominated; that Dr. H. B. Cummins, Seward, was nominated on the democratic ticket for congress in the Fourth District; that Dr. John G. Westerhoff, Carleton, was defeated in the race for state senator; that Dr. E. O. Weber, Wahoo, failed of nomination for regent of the university.

Just a month ago a Nebraska woman residing for the summer at Minnehaha Falls, on the Pike's Peak Cog road fell over a ledge and landed some fifteen feet below with a fractured and dislocated knee. The mishap occurred at dusk. Two young men volunteered to go to the city below for a doctor and bring him to the sufferer on the mountainside on a horse. No doctor could be found who would go, on the plea that the injured member needed to be X rayed and the patient must therefore be brought to the hospital before relief could be given. Fifteen hours intervened before the sufferer could be taken down on a cog road train, during which time she suffered the agonies of the damned. Lives there in Nebraska a doctor so utterly bereft of the instincts of humanity and so devoid of common decency, that he would not have responded to the call of the sufferer?

SAUCE FOR THE GANDER.

Have you ever been on a migraine spree?
Has you head ever pained 'til you couldn't see?
O doctor of mine!
Have mists as dark as sin is old,
Wrapped close your brain in its deadening cold,
'Til your pulse is slow and your will is gone,
And only your subconscious self lives on?
Learned doctor of mine!

With flashes of light have your eyes been rent
Like bolts of lightning earthward sent?
Sage doctor of mine!
Have sounds so light that your friends scarce hear
Pounded and broke on your sensitive ear?
And the perfume of flowers—now a sweet garden rose,
Now an old-fashioned marigold—battered your nose?
Good doctor of mine!

You are in the main, a pretty fine fellow,
With rarely a hint of the streak that glints yellow.
Grave doctor of mine!
But once in a while I'd be happy to see
You writhing in pain with a migraine spree.
With slightly more ardor you'd seek for a cure,
Not one to relieve, but one to endure.
Wise doctor of mine!
Could I be the doctor and you the victim,
I'd chant to you your well worn dictum.
I'd give you a smile and a hypo, and say,
"You'll be slightly relieved by tomorrow—goodday."

—Dora Bower Eccles.

HOCH DER DOKTOR!

(From the August, Medical Herald)

We wish to congratulate Dr. F. A. Long, editor of the Nebraska State Medical Journal, upon the great improvement he has made in his publication since taking charge of same. The physicians of Nebraska have reason to feel proud of their state journal.

THE MEDICAL SOCIETY OF THE MISSOURI VALLEY AT ST. JOSEPH.

The thirty-fifth annual meeting of this association will be held in St. Joseph, under the presidency of Dr. Paul E. Gardner, on September 21-22. The Buchanan County Medical Society is preparing for a series of clinics to be held at the various hospitals on Tuesday and Wednesday, preceding the meeting, September 19-20. St. Joseph has a proverbial reputation for warm-hearted hospitality, and the arrangement committee, under the leadership of Dr. Floyd H. Spencer, announces that the "tang" of his city for entertainment and good fellowship will be fully sustained upon this occasion. The famous hotel Robidoux will be headquarters, and all sessions will be held in the beautiful Crystal Room. The exhibits will be on the same floor.

One of the features of the second day will be a symposium on the "Early Recognition of Cancer" participated in by a number of men who have won national distinction in research work and clinical investigation. On Thursday evening at 7:30 o'clock, Dr. C. W. Hopkins, chief surgeon of the C. & N. W. railway, will give an illustrated lecture on "Injuries and Surgery of the Spine," and Dr. N. M. Keith, of the Mayo Clinic, will present a paper on "Hypertension in Cardio-Vascular Disease," illustrated by lantern slides. Following the evening session will be a smoker and other entertainments. Members are urged to bring their ladies who will be entertained while the fellows are attending the sessions.

Reservations of rooms at the Robidoux should be made early to avoid disappointment. The medical profession of adjoining states cordially invited to attend the clinics whether or not they are members of the society. The preliminary program follows:

"Causes of Duodenal Ulcer," Dr. E. P. Sloan, president Illinois State Medical Society, Bloomington, Ill.

"Toxic Factors in Intestinal Obstruction," Dr. T. G. Orr, Kansas City.

"Convulsions in Children," Dr. S. Grover Burnett, Kansas City, Mo.

"The Phosphatic Index," Dr. J. Henry Dowd, Buffalo, New York.

"Some Phases of the Relation of Dental Focal Infaction and Systemic Diseases," (lantern slides), Dr. Russell L. Haden, Kansas City, Mo.

"Renal Function in Prostatic Hypertrophy," Dr. Raymond L. Latchem, Sioux City, Iowa.

Dr. Leigh F. Watson, Chicago, subject to be announced.

"Myoclonic Type of Epidemic Encephalitis," Dr. Lloyd James Thompson, St. Joseph.

Dr. Lynne B. Greene, Kansas City, subject to be announced.

"Cancer: Its Early Recognition," a symposium.

(a) Address, Dr. Fred J. Taussig, St. Louis, Mo., "How far Can the Cancer Death Rate Be Decreased by Educating the Profession and the Laity."

(b) "Superficial Cancers," Dr. E. H. Skinner, Kansas City, Mo.

(c) "Gastro-Intestinal Cancers," Dr. John M. Bell, St. Joseph, Mo.

(d) "Cancer of the Breast," Dr. Donald Macrea, Council Bluffs, Iowa.

(e) "Cancer of the Uterus," Dr. Palmer Findley, Omaha, Neb.

CLINICAL WEEK AT KANSAS CITY.

The Academy of Medicine of Kansas City, Missouri has voted to establish a yearly clinical week during the month of October on the 3rd, 4th, 5th and 6th, of that month. At this time also occurs the Priest of Pallas but this will in no way interfere since the clinics will be given in the forenoon of the days mentioned. The Priest of Pallas has nothing scheduled for the forenoon.

There will be three evening programs. The third of October will be set aside as a smoker and get together, on the fourth a banquet will be held, at this time a man of national medical reputation will deliver an address, the evening of the fifth will be reserved for a scientific program.

THE SOCIETIES.

The **Cass County Medical Society** met in Weeping Water park, July 31, the doctor's ladies furnished a picnic dinner, and Dr. H. J. Lehnhoff, Lincoln, addressed the meeting. The event was voted a notable one.

At a meeting of the **Madison County Medical Society**, Norfolk, August 8, Dr. J. D. McCarthy, Elgin, read a paper on "Typhoid Ridden Utopia" and Dr. H. G. Morris, Newman Grove, one on "The Semilunar Cartilege." It has developed that several of the counties adjoining have no county societies and apparently cannot organize. The members of the profession in these counties have been invited to take membership in the Madison County Society. Madison and Stanton counties have been a unit since the world war.

The **Saline County Medical Society** met at Western August 8. Dr. H. E. Potter, Fairbury, read a paper on "Some Business and Legal Questions that Confront the Country Doctor."

The **Dodge County Medical Society** at a meeting at the Fremont Country Club, July 21, featured golf for the early afternoon, the scientific program for 4:30 and a 6:30 dinner prepared by the doctor's wives. The program follows: "Symptoms and Physical Findings in Pulmonary Tuberculosis," Dr. George Covey, Lincoln. Dr. C. M. Moore, Fremont, "Sore Feet." "Frontal Sinus Infections," Dr. A. G. Luschen of Columbus, and "Clinical Cases on Some Bone Pathology," Dr. H. C. Pedersen of Fremont. Dr. A. Sachs of Omaha also read a paper before the meeting.

HOSPITAL NOTES.

Dr. Mackedon of Chicago, inspector of hospitals for the American College of Surgeons, has recently inspected the hospitals of Nebraska with a view to standardization.

Again the Falls City hospital is to be rehabilitated financially and otherwise. Its hope lies in a unity of effort, by the Chamber of Commerce, County Commissioners, local lodges, clubs, etc.

NOTES ABOUT THE DOCTOR.

Dr. F. W. Boland, formerly of Omaha, has located at Auburn.

Dr. S. M. Weyer, formerly of Long Pine, has located at Wakefield.

Dr. J. S. Deering, formerly of Elmwood, has located at Onawa, Iowa.

Dr. W. E. Wolcott, Omaha, has returned from a four months' trip to Europe.

Dr. and Mrs. W. F. Milroy, Omaha, spent a month at Interlaken Inn, Fairmont, Minn.

Dr. and Mrs. J. L. Magill, Holdrege, made a trip to the Yellowstone Park last month.

Dr. and Mrs. H. W. Orr, Lincoln, motored to South Dakota and Minnesota early in August.

Dr. C. B. Coe, Wakefield, has disposed of his home, etc., and will engage in practice in Omaha.

Dr. A. F. Jonas, Omaha, spent some time at his summer home on Lake Mendota, Madison, Wis.

Dr. Irving S. Cutter, Dean, Nebraska University College of Medicine, was reported seriously ill during August.

Dr. F. J. Kalal has moved from Grand Island to St. Paul, instead of to Howells, as reported in the August number.

The business manager of the Journal, Miss Annie Erixon, viewed the wonders and beauties of the Yellowstone Park during August.

Dr. J. C. Moore, Omaha, is going to California to reside this fall. Preceding the westward journey, Dr. and Mrs Moore have gone east on a trip.

Dr. C. F. Roh, formerly of Norway, Iowa, has located at Tecumseh. In the late nineties he was engaged in practice for ten years at Elm Creek.

Dr. A. W. Anderson has moved from Bancroft to West Point and will become associated with Dr. J. J. Kiefer in the practice of medicine and surgery.

Dr. and Mrs. F. A. Long, Madison, took a motor trip in late July and early August that included Cambridge, Ill., Madison and The Dells, Wisconsin, and Lake Okoboji, Iowa.

Dr. L. A. Lansing for eighteen years a practitioner at Wakefield, has relinquished his professionad business, and will move to Troy, N. Y., his native home, the move being made for personal family reasons.

Dr. John W. Shuman, Sioux City, Iowa, has accepted a place as professor of internal medicine at the American University of Beirut, Syria, and with his family sailed for the Near East the latter part of August.

Dr. J. S. Foote, professor of pathology, Creighton Dental College was voted a research fund by the Nebraska State Dental Society recently. Simultaneously comes a report that he suffered a cerebral hemorrhage and partial paralysis while on a vacation at Bass Rocks, Mass.

HYMENEAL.

Dr. James B. Kile of Eddyville was married to Miss Amelia C. Specht of Syracuse, July 12.

The marriage of Dr. B. C. Russum, Omaha, and Miss Harriett Jarrett, Milford, is announced.

NECROLOGICAL.

Dr. Nicholas McCabe, North Platte, University of Buffalo, 1886, for thirty five years a practitioner at North Platte, died August 8. Dr. McCabe had been active in the business affairs of the community, had been mayor of North Platte, was well known in state politics, was the owner of the Hotel McCabe building, and was considered a foremost citizen.

BOOKS RECEIVED AND REVIEWED.

The American Illustrated Medical Dictionary, by W. A. Newman Dorland, A. M., M. D., F. A. C. S. Flexible leather cover. 1130 pages. Eleventh edition, revised and enlarged. 1922. W. B. Saunders Co., Philadelphia.

This is the handiest medical dictionary we have ever seen . The print is excellent, the illustrations of the highest order, the definitions are terse and pointed and the newer words up to 1922 are there.

Practical Therapeutics. By Hobart Amory Hare, M. D., LL. D., B. Sc., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College of Phiadelphia. Cloth. Price, $6.50, net. Pp. 1038, with 150 illustrations. Eighteenth edition. Philadelphia and New York: Lea & Febiger, 1922.

A Manual of Clinical Laboratory Methods. By Clyde Lottridge Cummer, Ph. B., M. D., Associate Professor of Clinical Pathology, School of Medicine, Western Reserve Uni. Cloth. Price, $5.50 net. pp. 484, with 144 illustrations. Philadelphia and New York: Lea & Febiger, 1922.

Diseases of the Digestive Organs with Special Reference to their Diagnosis and Treatment. By Charles D. Aaron, Sc. D., M. D., F. A. C. P., Professor of Gastroenterology and Dietetics in the Detroit College of Medicine and Surgery Cloth. Price, $10.00, net. Pp. 904, with 212 illustrations. Third edition. Philadelphia and New York: Lea & Febiger, 1921.

The Eighteenth Amendment and the Part Played by organized Medicine. By Charles Taber Stout. Cloth. Price, $1.50, net. Pp. 216. New York: Mitchell Kennerley, 1921.

NEW AND NONOFFICIAL REMEDIES, 1922, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1922. Cloth. Price, postpaid, $1.50. Pp. 417+XXXIV. Chicago: American Medical Association, 1922.

New and Nonofficial Remedies is the publication of the Council on Pharmacy and Chemistry through which this body annually presents the American medical profession with disinterested, critical information about the proprietary medicines which are offered to the profession, and which the Council deemed worthy of recognition. In addition to the descriptions of proprietary preparations, the book contains descriptions of those nonofficial remedies which the Council deemed deserving of consideration by the profession.

To be admitted to New and Nonofficial Remedies it is required that the quantitative composition of the article be declared, that the therapeutic claims made in marketing the article must be truthful and that the preparation has, or gives promise of having, therapeutic value.

The description of articles are based in part on investigations made by or under the direction of the Council and in part on information submitted by the manufacturer or his agent. However, statements made by those interested in the manufacture or marketing of an article are accepted only if they are supported by substantiating evidence or conform to generally accepted facts. Physicians, therefore, may use the book as a guide in determining whether or not a given proprietary prepartion is indicated in the treatment of their patients. The interests of the patients and of the physicians themselves will be safeguarded by following the suggestions made in The Journal of the American Medical Association ("Helping the Council"; J. A. M. A., Nov. 6, 1920, p. 1275) and by giving no consideration to any proprietary medicinal agent which has not been admitted to New and Nonofficial Remedies.

A valuable feature of the book is the grouping of preparations in classes. Each of these is introduced by a general discussion of the group. Thus the silver preparations, the iodine preparations, the arsenic preparations, the animal organ preparations, the biologic products, etc., each is preceded by a general, thoroughly up-to-date discussion of the particular group. These general articles compare the value of the products included in the group with similar pharmacopeial and other established drugs which it is proposed that these proprietary preparations shall supplant.

A glance at the preface of this volume shows that the book has been extensively revised. In fact each edition of New and Nonofficial Remedies is essentially a newly written book, brought up to date by those who speak with authority on the various phases of therapeutics.

Physicians who wish to know why a given proprietary is not described in New and Nonofficial Remedies will find the References to Proprietary and Unofficial Articles not found in N. N. R. of much value. In this chapter (in the back of the book) are given references to published articles dealing with preparations which have not been accepted. These include references to the Reports of the Council, to Reports of the A. M. A. Chemical Laboratory and to articles which have appeared in The Journal of the American Medical Association.

New and Nonofficial Remedies should be in the hands of all physicians who prescribe drugs. The book contains information about the newer materia medica which cannot be found in any other publication.

The book will be sent postpaid by the American Medical Association, 535 North Dearborn Street, Chicago, on receipt of one dollar and fifty cents.

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THE ROENTGEN TREATMENT OF TOXIC GOITER.*

E. W. Rowe, B. Sc., M. D., Lincoln, Nebraska.

It is the purpose of this paper to call attention to the advancement in the knowledge of thyroid disease and to present the treatment of thyroid intoxication from the viewpoint of the roentgenologist. Those suffering from thyroid intoxication make up a large group of patients, and of those receiving special treatment already more are being treated by Roentgen rays than by medicine or surgery.

Recent literature is fresh with abundant information on thyroid research. There has been more advancement in the past five years in the understanding of the physiology, histopathology and classification of thyroid disease than in any other subject in medicine of equal importance.

About the year 1905 treatment by the Roentgen rays came into vogue. Indifferent success caused the method to fall into disrepute because it did not seem to prove more efficient than any other means employed, and many seemed to grow worse under its influence. This failure to prove of any great value was due to a lack of knowledge of the cause of thyroid intoxication, faulty technic and inadequate Roentgen apparatus. These faults have all been remedied. Kendall in 1914 discovered thyroxin, a pure chemical compound, and proved it to be the secret of all the strange phenomena of thyroid intoxication. Plummer, Boothby, Sandiford at Rochester, Du Bois at Cornell, Harris and Benedict at The Carnegie Institute, Deyer at Oxford, England, and many others have made researches in basal metabolism which have explained the relationship of this newly discovered agent in the thyroid to the physiology and pathology of the thyroid gland.

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*Read before the Nebraska State Medical Ass'n., Omaha, April 25, 1922.

EXPLANATION OF CHARTS—Each one represents the graphical course of a patient suffering from a toxic goiter.

X ray treatment is indicated by the signs "X" or a rectangle.

Surgical treatment is indicated by the sign of an arrowhead.

Medical treatment is indicated where none of these signs appear.

"A" indicates that the patient was in bed.

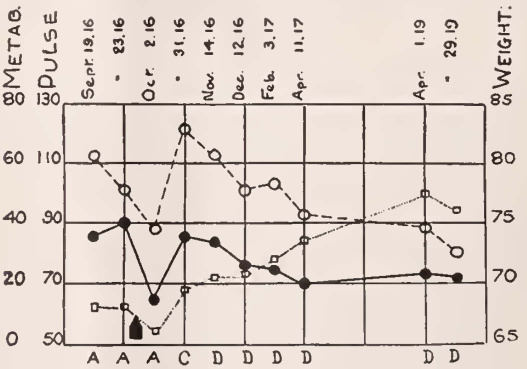
"C" indicates that the patient was on partial rest, attending to some duties.

"D" indicates that the patient was going about the usual avocation.

Numbers 1 and 8 and 15 to 20, both inclusive, have had X ray treatment as indicated.

Numbers 1, 4, 7, 12, 13, 14, 17 and 18 have had some surgery, ligation or lobectomy, with or without X ray as indicated.

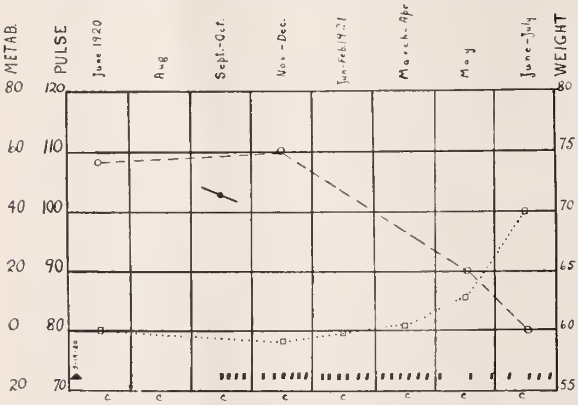
Numbers 9, 10, 11 and 12 have had only medical treatment.



The internists in particular have seized upon the information now available through studies of metabolism and its relation to thyroid disease. To them more than to the surgeon do we owe the recent attempt to limit and control it by the Roentgen ray.

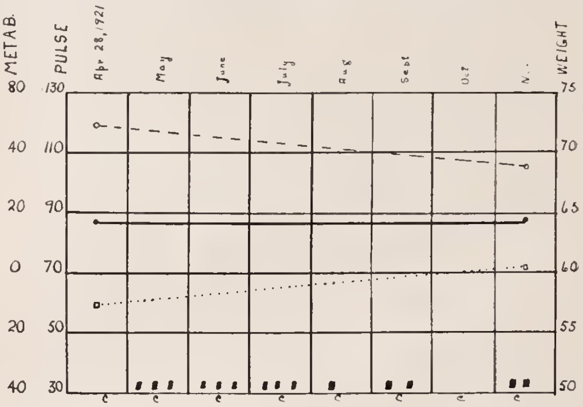
No investigator has been able to show that drugs have power to influence the drop of the metabolic curve after the improvement obtained from rest.

American surgery has made a valuable contribution to progress in the treatment of thyroid disease. The work of Crile and of those at the Mayo Clinic, now duplicated by many other surgeons, has placed this field of investigation upon a plane to which they can point with pride.



The thyroid gland is ductless. Its secretions communicate with the outside tissue only through its wall. It consists of epithelial tissue bound, as is lymphoid, by a capsule in the form of a dumb-bell, lying with its isthmus across the larynx, and the two lobes abundantly furnished with blood supply buried deep in the tissues of the neck along with other vital structures. The normal gland consists of acini containing colloid and lined with relatively inactive cuboidal columnar epithelium, supported by connective tissue similar to that of other parenchymatous organs.

The gland is abundantly supplied with reserve tissue. Three-fourths have been removed without any demonstrable disturbance in the physiology of the body or any change in the glandular tissue of the thyroid remaining. The thyroid undergoes periods of activity and repose, stores iodine and colloid. In the periods of stress it uses stored iodine and delivers thyroxin to the blood stream. The mechanism of stimulation is not understood.



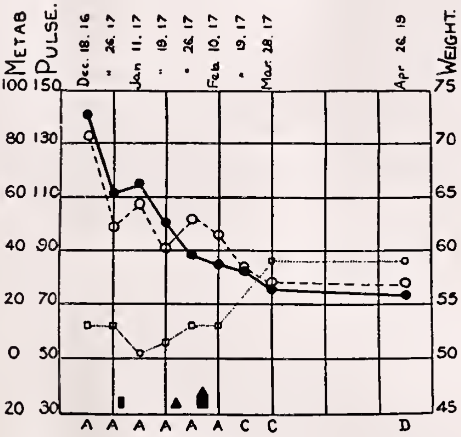
From the examination of thyroid tissue there is nothing pathognomonic to tell of the presence of thyrotoxicosis or exophthalmic goiter, nor to indicate the clinical state or degree of intoxication. But the pathological findings are fairly constant and reduce themselves to simple types, with all other tissue changes but degrees or modifications thereof. Three primary types are found: colloidal, adenomatous, and exophthalmic. The literature shows confusion on classification, but the various plans offered narrow down to this of Plummer's.

In the colloidal type there is an increase of intra-alveolar colloid. In the adenomatous new cells develop, usually localized but often diffuse. When localized they are thought to be embryonic remains, and hence liable to perverted cell activity. Hypertrophy of cells may be local or general, and is nearly always found if the gland is thoroughly examined. Diffuse parenchymatous hypertrophy, symmetrically involving the entire gland together with hyperplasia, is the characteristic type of so-called exophthalmic goiter. But three primary pathological processes are possible: hypertrophy of the alveolar epithelium, increase in intra-alveolar colloid, and the development of new alveoli. Cystic degeneration, fibrous formations, calcification and malignancy may arise, but are incidental to the above, as are any glandular degeneration or new growth.

The physiological disturbances that arise which are associated with these anatomical changes are:

1. Hyperthyroidism
2. Hypothyroidism
3. Exophthalmic goiter

Degrees of all these occur, and alteration from excess to insufficiency occasionally is found.



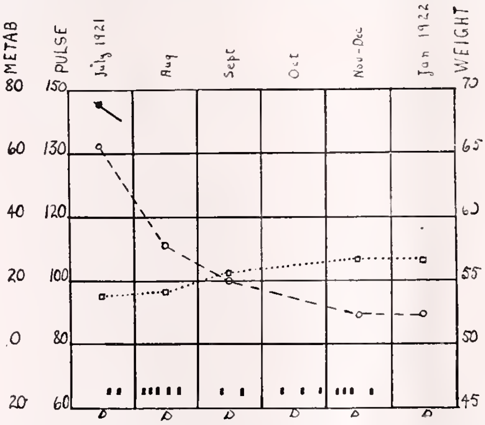
Hyperthyroidism is a clinical syndrome seen but rarely except where hypertrophic or adenomatous changes in the thyroid are found, and it may follow the administration of thyroxin. Exophthalmic goiter is given a special classification, not accepted by all pathologists, because its clinical syndrome cannot be explained by an excess of thyroid product, and because in no other clinical type is the diffuse parenchymatous hypertrophy and hyperplasia so constant. Kendall admits that this explanation is good and may be due to the elaboration of an incomplete or different thyroxin molecule.

In the succeeding discussion based on the pathology described and its physiological changes observed, the following types of toxic goiter will be considered:

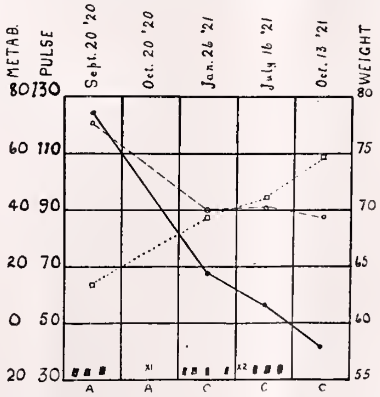
1. Colloidal
2. Adenomatous
3. Exophthalmic

No claim is made that colloidal and adenomatous goiter are always toxic. But hyperthyroidism may occur in either, even after long periods of inactivity.

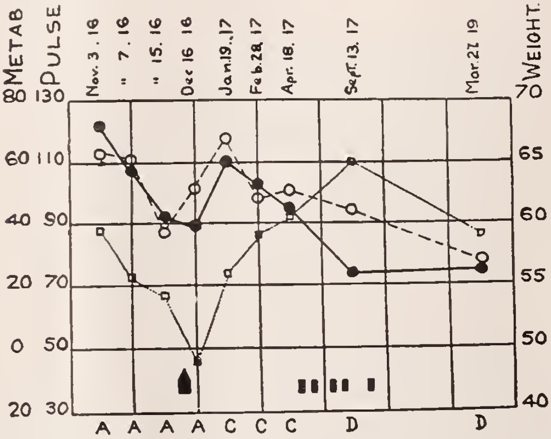
The thymus gland is normally of little significance in the adult. Its extirpation in animals is known to have no detectable change in any body function or organ. Its role in thyroid disease is not known. But its presence in sixty-five per cent of the cases of exophthalmic goiter operated on, and its importance in Roentgen treatment, make it very probable that some pathologic process goes on in it along with thyroid disease.



The story of toxic goiter is tied up with the knowledge of the composition, elaboration, storage and action in the body tissue of a chemical compound called thyroxin. This important substance is made and stored in the thyroid, and found in the body tissues in very minute quantities. The isolation of the pure compound has been the greatest triumph of recent medical discovery. The understanding of thyroid intoxication and its treatment is so intimately wrapped up in this vital compound that some time spent on the results of research are essential to our theme.



The thyroid has no other known function than the production of thyroxin. Colloid is secreted and stored in the acini of the gland, and in it is this iodin organ compound, thyroxin. The function of thyroxin seems to be to activate the functions of the body cells or to furnish actual energy. When hyperthyroidism is present, thyroxin is in excess in the body tissue and acts as a powerful drug in its own particular way. As a consequence the basal metabolism of the body is held above normal. Hypothyroidism may be explained in the opposite manner. Exophthalmic goiter is accounted for by an excess of a molecule slightly different from thyroxin.



The peculiar properties of thyroxin have been summarized by Plummer.

1. After the administration of a single dose of thyroxin to a patient without thyroid sufficient to bring basal metabolism to normal, the physiological status of the patient becomes normal in ten or twelve days, remains practically normal for ten days, and returns to its preexisting condition in five to seven weeks.

2. The amount of thyroxin in the tissues exclusive of the thyroid is 14 mg. (Kendall).

3. The average daily exhaustion of thyroxin in tissues is between 0.5 mg. and 1 mg.

4. A shift of 1 mg. of thyroxin in tissues above or below this amount is accompanied by a rise or fall of between 2 and 3 per cent in basal metabolism.

5. The quantity of 14 mg. given to a thyroidless patient is not exhausted until the end of the fifth or eighth week.

6. Two milligrams of thyroxin a day may hold metabolism from 20 to 30 per cent above normal; 3 mg. may hold it 50 per cent above normal.

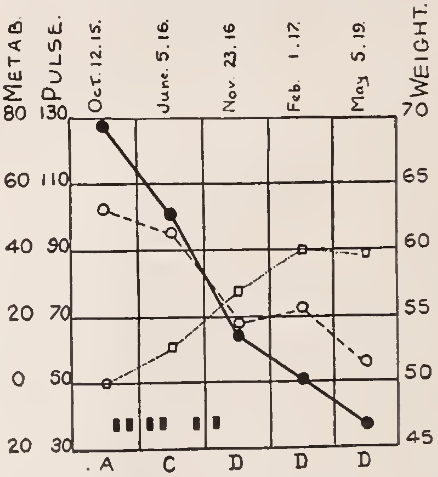
7. Two exceptions to this were noted: In a patient with exophthalmic goiter and a plus rate of 65, and in a patient with a large colloid goiter, there was no change in the existing rate.

The amount of thyroxin in the body is small, but exceedingly constant in amount. Even after complete thyroidectomy the drop is exceedingly slow.

Thyroxin may be administered intravenously. Its action is identical with the action of thyroid extract or of the desicated thyroid gland by mouth. An oral dose of thyroxin is less accurately or completely used, but 1.6 mg. by mouth will hold a thyroidless person normal.

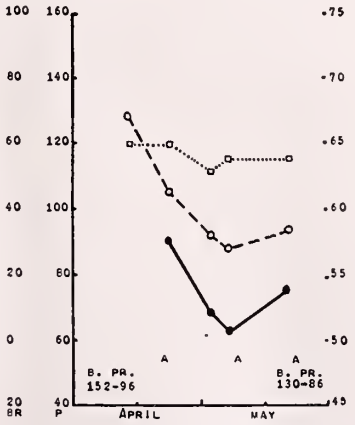
The long continued presence of excessive amounts of thyroxin may be the stimulant which produces hypertrophy, hyperplasia, and other changes in the thyroid gland.

In the diagnosis and treatment of thyroid disease the importance of a careful determination of the basal metabolism cannot be over estimated. Like the clinical thermometer in fever it has rendered accurate the estimation of the rate of heat combustion in the body. Normal basal metabolism is the measure of heat production in the body under normal conditions. It is either normal, or decreased or increased. The normal variations are very slight. It is more constant than the pulse or temperature. Slightest changes in the chemistry of the blood are known to cause the most grave disturbances. The changes in the iodin content of the thyroid are comparable in extent.



Of the diseases so far investigated, the following are characterized by an increased basal metabolism rate: Exophthalmic goiter, hyperthyroidism of adenoma, the active stage of acromegaly, and all febrile conditions. In other diseases, such as essential hypertension, pernicious anemia, leukemia, diabetes, and possibly a few others not yet investigated, a basal metabolic rate slightly above normal may occasionally though consistently be met with. After about twenty thousand tests for basal metabolism by Boothby and his co-workers, it was found that 95 per cent of all abnormally increased basal metabolism rates are due to hyperthyroidism either exophthalmic in type or from the thyroid adenoma) if a febrile condition is eliminated by the thermometer. Myxedema is characterized by a lowered basal metabolism rate. Inanition from prolonged fasting, anorexia nervosa, esophageal stricture or cardiospasm may give a lowered rate.

Then for practical purposes an increased basal metabolic rate means either exophthalmic goiter or adenoma of the thyroid, providing the factors just enumerated have been eliminated. Of particular value is the determination of the basal metabolism when careful differentiation is necessary to eliminate that type of patients having so called circulatory asthenia, effort syndrome, disordered action of the heart, cardiac neurosis, or nervous instability or neurasthenia. In these conditions the basal metabolism is never disturbed.



The Goetsch test is of little value in the differentiation of hyperthyroidism. There is no correlation between the intensity of epinephrin raction and degree of hyperthyroidism as controlled by basal metabolism rate.

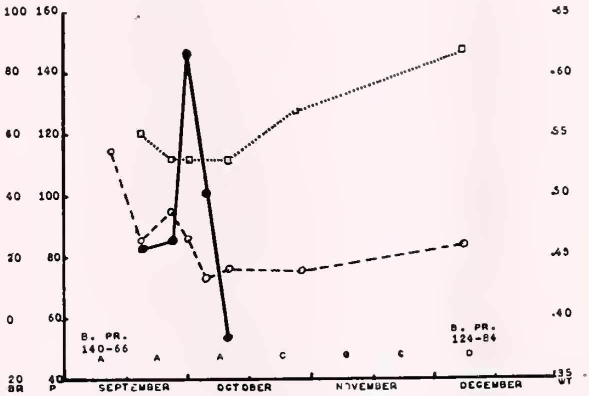
Dr. Means uses the following scale for expressing the degree of activity in hyperthyroidism.

20-40 per cent below normal means myxedema.

20-40 per cent elevation means hyperthyroidism.

40-60 per cent elevation means moderate hyperthyroidism.

60-100 per cent elevation means severe hyperthyroidism.

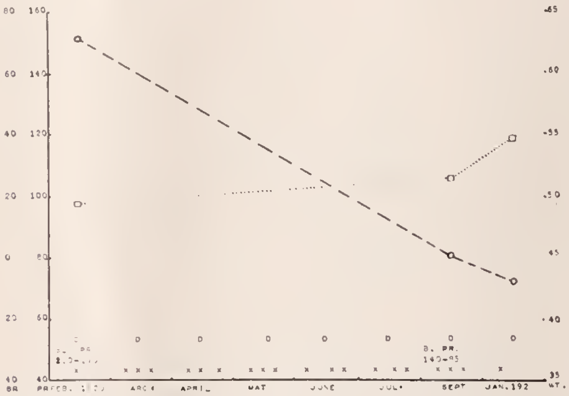


The metabolism test, called the quantitative estimation of the thyroid function, is an accurate gauge for treatment. It helps to visualise the progress a patient is making. It clinches the diagnosis in doubtful cases.

The apparatus for determining the metabolic rate is not an essential in the office of all physicians, but like the electrocardiogram it is useful for teaching purposes, and a refinement for all physicians who are called upon to diagnose or treat many cases of thyroid disease.

The treatment for toxic goiter resolves itself into a reduction of the thyroxin which a patient is manufacturing in the thyroid gland to that point which will sustain the basal metabolism within the normal limits, or as nearly as possible. This means a destruction of a part of the gland or putting a limitation to its production of thyroxin. Rest carried to its ideal application means much, and in mild cases may be sufficient, especially in those of the adolescent period. In the moderate or severe cases it will not bring down the metabolism rate below a certain point. Also, thousands of tests have shown that there is no drug which has any influence on the curve after rest has obtained its improvement.

American surgeons have made a brilliant record in thyroid surgery. Since the adoption of the subtotal thyroidectomy technic for removal of more of the thyroid, the results have been improved and there have been fewer recurrences. This has raised the percentage of cures in one clinic twenty per cent (Mayo). But there is much uncertainty about the type to choose for operation; much waiting for the proper time to operate while destruction of vital organs goes on; much uncertainty as to how much should be done, and much risk in the operation. Surgery remains the means of treatment in special cases. It will not apply as a general means of treatment. More treatment is being given today by non surgical means, such as rest and the Roentgen rays. From many clinical centers where internists and surgeons are working in conjunction with roentgenologists are coming reports of definite and positive results obtained by the Roentgen ray. Dr. Charles Mayo, representing a strictly surgical clinic, has expressed the hope of successful radiation. Dr. Ochsner tells of the early failures and expresses confidence in the future of radiation now that there is a better knowledge of technic, filtration and apparatus. Dr. Crile has advised Roentgen therapy in the adolescent types of hyperthyroidism.



Perhaps the most outstanding report of the good results of Roentgen therapy comes from the Massachusetts General Hospital in Boston. There for half a dozen years the cases have been studied from three viewpoints—that of the surgeon, of the internist, and of the roentgenologist. In one report there are 250 cases treated by Roentgen therapy alone, fifty by surgery, and fifty by medicine. Drs. Means and Aub represent the medical side, Dr. Porter the surgical, and Drs. Holmes and Merrill the roentgenological.

Dr. Means, using the basal metabolism rate as an index, has summarized the results as follows:

"1. In the majority of cases, the results after two or three years are equally good under Roentgen ray or surgery.

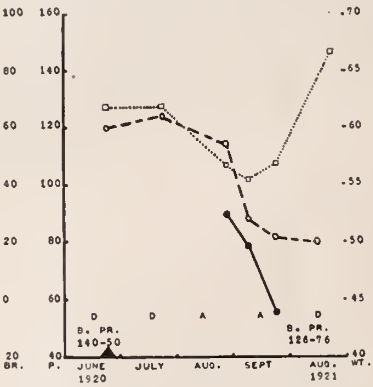
"2. After surgery the metabolism shows a rapid preliminary fall and a secondary rise, followed by a final fall; with Roentgen treatment there is a gradual but progressive fall.

"3. In securing the same end results with surgery or with the Roentgen ray, a lesser rest factor is necessary with the Roentgen ray. Again, with the Roentgen ray there is practically no mortality; with surgery there is a definite mortality.

"4. Patients treated surgically do better, and the risk of operation is less, if they have previously had irradiation of the thymus and thyroid.

"5. The risk of operation is greater and the need for preoperative Roentgen treatment is greater in cases with a very high metabolism and moderate tachycardia than in those with extreme tachycardia and moderate elevation of metabolism.

"6. The safest program for the treatment of exophthalmic goiter, as a whole, is the routine irradiation of thyroid and thymus glands in all cases, with surgery held in reserve for patients who do not get well.

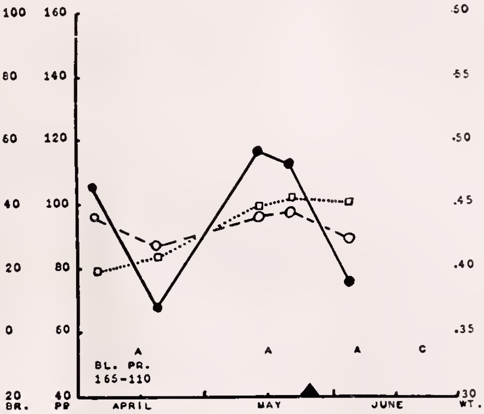


"7. Surgery is contraindicated with patients whose metabolism is rising in spite of complete rest in bed, and also with patients of the type with moderate tachycardia and great metabolic increase, except when they have previously had thyroid and thymus glands treated by Roentgen ray.

"Finally, we believe that in the management of exophthalmic goiter, periodic determination of the basal metabolism should be quite as much a routine as is the examination of urine for sugar in diabetes; furthermore, that in borderline cases the basal metabolism furnishes very valuable aid in differential diagnosis."

This report is based on 345 metabolism estimations on 130 patients. The medicine most used in the medical treatment, as well as in some of the roentgenized cases, was quinine hydrobromate.

In comparing Roentgen therapy and surgery it was found that in the third year after treatment the end results were the same. In Roentgen therapy the improvement was gradual but progressive; with the surgical group there was a sudden marked improvement and a subsequent relapse. The factor of rest was distinctly greater in the surgical group than in the Roentgen group, yet no more ultimate benefit was apparently secured. Moreover, when the Roentgen ray treatment was begun the Roentgen ray group had more of an increase in metabolism—65 per cent, and surgery but 46 per cent. All surgical cases were resting; only a few of the Roentgen cases rested. Yet the Roentgen ray group were composed of the more severe type.



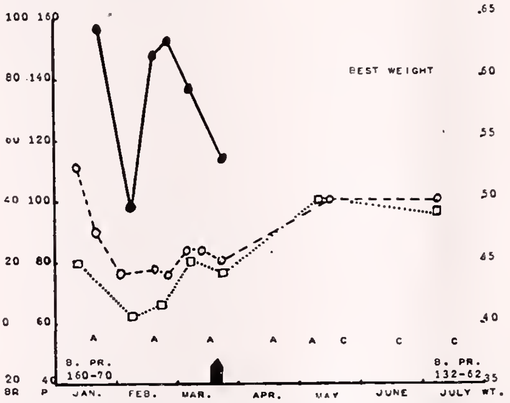
The chance of cure in exophthalmic goiter is as good with Roentgen ray treatment as with surgery in groups of equal toxicity. That being true, the former method is preferable, the danger of fatal outcome being less. Of the nine known deaths, five were surgical, three due to unknown causes, and one after Roentgen treatment.

I am purposely omitting, for lack of time, the reports of the surgeon and roentgenologist who worked on the same cases, but both in the main coincide.

From the University of Minnesota comes another joint report by the medical and Roentgen departments. Thirty-five cases are reviewed which were treated between June, 1920, and February, 1921. Drs. Allison, Brand and McKinley divide the patients in three types as follows:

1. Toxic goiters with and without exophthalmos; both mild and severe. Number, twenty six.

2. Postoperative exophthalmic goiter, surgery having failed. Partial thyroidectomy. Number, six.



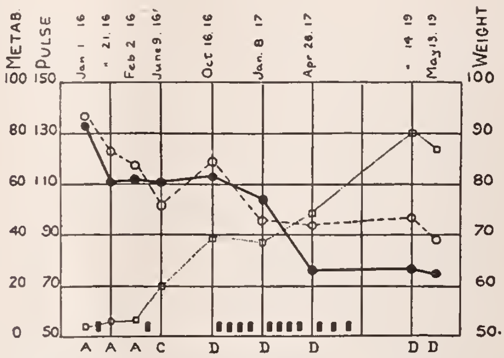
3. Thyrotoxic goiter from adenoma. Number, three.

The results in these cases are based on the metabolism rate, gland enlargement and eye signs, and observation recorded every month. Of 24 cases of Graves' disease without complications, treated by Roentgen ray, 24 are well from the laboratory and clinical standpoint.

The effects of Roentgen ray treatment are upon the gland. There is a slow degeneration of parenchymatous tissue which is replaced by fibrous tissue if a sufficient number of radiations over a long enough period of time are employed. The process can be checked at any stage, providing the radiation ceases before the end result desired. Treatment by Roentgen rays does not make operation any more difficult. Cases that have seemed more difficult are probably those in which acute thyroiditis or perithyroiditis occurred.

In the hands of an expert the dangers of Roentgen treatment are small. Telangiectasis and atrophy of the skin seldom if ever occur if the dose is kept below an erythema skin dose. Prevention is not difficult by filtration if a sufficient voltage is maintained. Hypothyroidism may occur if roentgenization is carried too far. This can be avoided if the metabolism curve is properly observed and if the dosage is regulated accordingly. Of the cases reported in the literature there were two in which thyroid extract was indicated and administered. After a time both cases came back to normal. Hypothyroidism occurs in the natural course of toxic goiter anyway. The toxemia is not great, but when the metabolism rate is high it may be prevented by alkalinization and smaller doses.

The Roentgen ray usually relieves symptoms after two or three treatments. Rest and diet must be carefully regulated. As a rule most of the cases receiving Roentgen treatment are ambulatory and it is difficult to limit their activities.



The earlier toxic goiter is recognized, the more likely is it that Roentgen treatment will give prompt relief. The younger the patient, as a rule, the more complete is the cure. Of course the treatment takes time. If a patient has changes in the heart muscle and parenchymatous changes elsewhere, these must undergo a long rest even after the thyroid intoxication has been relieved. There is no such thing as an innocent pathological goiter. Any change in the thyroid gland means that there is potentially a dangerous organ. Whenever objective signs arise in any thyroid, even in young girls, the subjective symptoms must be carefully observed; and if they indicate hyperthyroidism, and if the metabolism rate shows this to be the true diagnosis, Roentgen treatment should be employed. It will do no harm, and usually but a few treatments are required to effect a cure.

The indications for Roentgen therapy are:

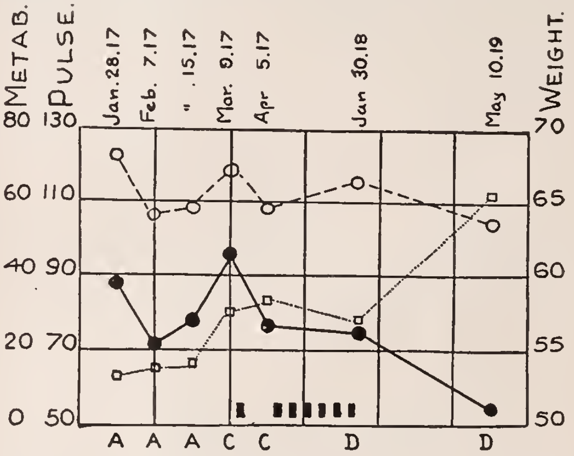
1. All exophthalmic goiters.
2. To prepare for surgery by reducing the activity of the thyroid.
3. After surgical failure rather than to reoperate.
4. Adolescent goiter not responding to rest.
5. Adenomatous goiter in which toxicity has been definitely established.
6. Carcinomatous degeneration after surgical removal, especially if toxicity is present.

The contraindications are:

1. Colloid, cystic, fibrous and nodular goiter, without toxicity.
2. Goiter causing marked pressure without symptoms.
3. Intrathoracic goiter.

The treatment of thyroid intoxication is major roentgenological work. It requires a thorough knowledge of the pathology and clinical types, as well as the technic. The closest cooperation with the internist should be established.

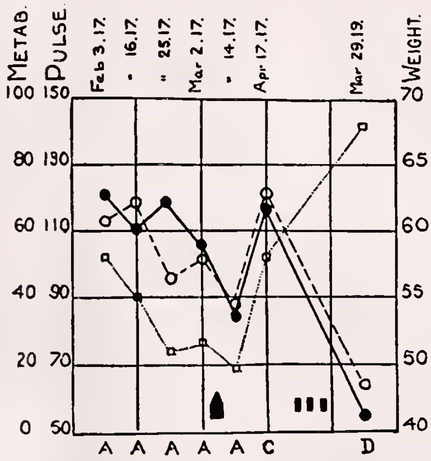
Improvement is first noticed by a reduction in the pulse rate; then the weight begins to increase and nervousness and insomnia gradually improve. In about fifty per cent the exophthalmos will eventually disappear. In most cases it improves. The thyroid enlargement is one of the last objective signs to disappear. The end results in the patient depend entirely on the damage done, when the hyperthyroidism disappears. If degeneration of heart muscle and nephritis occur, improvement is often great, but of course a complete cure can not be expected in any treatment.



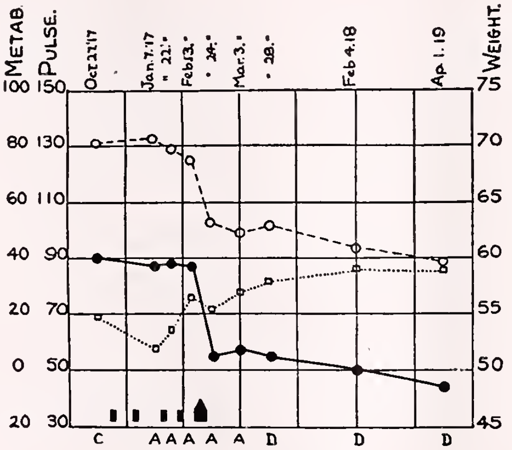
All patients coming for treatment should first have the metabolism rate taken. If the rate is above twenty plus, Roentgen treatment is indicated. Focal infections should be carefully searched for and removed. The thymus gland should be treated in every case. It is my custom to treat twice a month. This is continued for about three months, then there is a rest for a month, and if the metabolism rate is still high another series follows. These cases should be observed for a year. The Roentgen ray is given through three portals of entry—two over each lobe of the thyroid and one over the thymus. The transformer is so adjusted as to give a nine inch gap, five milliamperes. This is through five millimeters of aluminum for six minutes.

CONCLUSIONS.

1. Properly selected cases are as rationally treated by Roentgen ray as by surgery.
2. Adolescent toxic cases and early toxic cases yield most readily.
3. Adenoma with toxicity yields less readily, but often gives brilliant results.
4. Exophthalmic goiter shows the best results of all, and if Roentgen treatment is faithfully carried out it seldom requires surgery, while the results are just as permanent.
5. Malignancy is no contraindication. Pfahler reports two cases permanently cured.



6. There is no harm in the treatment, and many are cured.
7. There is no fear of operation, less likelihood of recurrence, and no defacing scar on the neck.
8. Three series may effect a cure. Sometimes six or eight are required.
9. The tonsils when infected should, with other foci of infection, be treated. The tonsils may be treated at the same time by the Roentgen ray with a high probability of relief.
10. The treatment should be given only by or in cooperation with an experienced clinician.
11. The estimation of the basal metabolism rate in the selection of cases will determine the thyroid activity better than any other method. It will help also to visualize the progress of the patient and give a safe indication when treatment should be discontinued.



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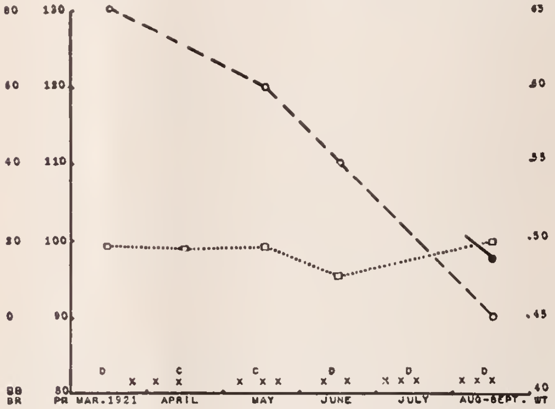


DISCUSSION.

L. W. Rork, M. D., Oxford: I think Dr. Rowe's emphasis on the use of a basal metabolism apparatus is of the greatest importance, but unfortunately it is usually absent from the armamentarium of the average medical man at the present time. But I would venture to say in a very short time it will be as common as a microscope in the average office. Pending that time, consideration of the early manifestations seems to be of particular interest to the average man. These cases do not go to the radiologist or to the surgeon early.

In the early stages, with the frequency of the absence of tumor, the absence of exophthalmos, often the absence of tremor, the condition may be allowed to run along for some time until considerable damage has been done to the individual possessing the sick thyroid.

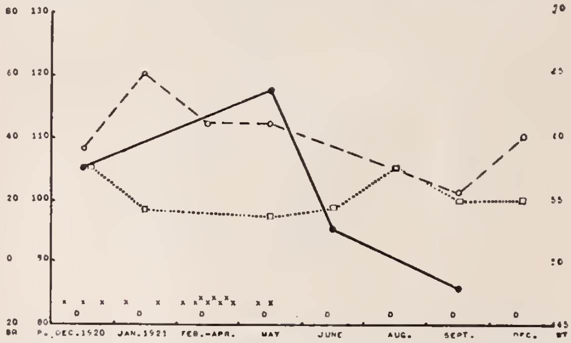
Dr. Getsch suggested a group of early symptoms I think are worth keeping in mind. The usual loss of flesh, great fatigue on slight exertion, combined with tachycardia, without hyperyprexia form an important group, and would tend to call the attention of the physician to this condition.

Dr. Pfahler has suggested an early sign which is at least very suggestive. He takes the pulse rate of the patient sitting and relaxed, and then requires the individual to walk around the room without exertion. He takes the pulse rate again. If the rate has increased twenty or more, he considers it as rather significant. The method referred to of the internest, roentgenologist and surgeon combining in the handling of these cases is rational medicine. In the early stages rest and appropriate medicinal treatment is sufficient to clear up the condition in many cases. In those not responding to medicinal treatment the records show that the ray is curing a very respectable percentage and reducing the toxic symptoms in practically all. In the case of those who go to the surgeon, the preliminary treatment has been of benefit in preparing them for operation.

B. W. Christie, M. D., Omaha: I think the doctor who opened the discussion on this paper brought in a very pertinent fact—that in the development of the metabolism idea of the apparatus, the same old fault is going to happen with the medical profession. They are going to miss the clinical side of the picture and depend upon the laboratory for their findings. That is liable to be the case in our goiter troubles if we pursue the lines some seem to be pursuing.

In regard to the different apparatus for estimation of basal metabolism, there is the greatest difference of opinion about that matter. As most of you know, Dr. Boothby and the Rochester clinic have no use for the ordinary apparatus the ordinary man has in his office for the determining of basal metabolism. There again you are up against a stone wall. It is a sure thing the ordinary practitioner cannot equip himself with the kind of apparatus they have at Rochester for this purpose. Whether or not the other methods of estimating basal metabolism are not what they should be, we are not prepared to state.

There is one thing I want to say about the X ray treatment, and that is Dr. Rowe makes out a good case for the X ray side of the treatment of this condition. He states there are no fatalities. I saw last week in Minneapolis a case of a child with an enlarged thymus, treated by X ray by one of the best men in Minneapolis, with a number of years of X ray experience and a large number of patients to treat, in which this child had become an absolute cretin from X ray treatment of the neck for this enlarged thymus. It was not in the hands of an inexperienced man, but a man who had done a lot of X ray work. So there is some degree of danger associated even with the X ray treatment.



Personally, the few cases of thyroid disease of different types I have been unfortunate enough to have handled and treated, I have never seen any of them get well finally except the cases that eventually submitted to surgery.

H. B. Boyden, M. D., Grand Island: A few months ago there was a report by a doctor in the journal of the American Medical Association, in which he stated the people living on the east coast where the water and vegetation had iodine contents, are practically free from goiter. We know we have goiter districts. Ninety-five per cent of the people of Switzerland have goiter. In Akron, Ohio, they put the school children on prophylactic treatment by administering iodine to them, and got most striking results in the prevention of goiter, according to statistics.

I want to take direct issue with Dr. Rowe's advocacy of X ray treatment of goiter by saying the surgical treatment of goiter is very satisfactory. The relative mortality is practically nil. In advanced cases, it would be very similar when it comes to surgery to a case of appendicitis with a general peritonitis. There will be a mortality in that class of cases.

Relative to the X ray treatment of goiter, I look upon it as in the treatment of cancer. It seems to kill the cells on the surface and stimulate the deeper cells to growth. There is quite a comparison between the fibroid tumor and goiter admissible, because they both have some effect on the heart. If you follow many cases of fibroid tumor treated with X ray, you will see they gradually become cachetic, and operation will be the only thing that will save them. I have seen cases of fibroid tumor and exophthalmic goiter go right down hill from Xray or radium treatments.

C. A. Roeder, M. D., Omaha. I have enjoyed this paper very much. We had the pleasure of hearing it at Lincoln not long ago at the meeting of the American College of Surgeons. I think Doctor Rowe has done as good work as any X ray man in the country on the thyroid gland. He has taken pains to report his cases more carefully than do many.

What is most interesting to me is the fact how practitioners of medicine swallow the term "goiter." It does not mean anything in itself, any more than when you hear of a case of infection. You always inquire as to what type of infection is present and the area involved. It is so with goiters, you must know the type.

The Europeans taught us very little about the thyroid gland. If you will read the books written five or ten years ago, you will find terms which mean absolutely nothing. I think in the field of enlargement of the thyroid, the Americans have achieved marked success. They so classified goiters on such a sound pathological basis that three types have been evolved, the colloid, adenomatous and hyperplastic.

I know of no disease that requires more combined knowledge of general biology and geology than the colloid goiter. Colloid goiters are cured by nature in about 50% of instances and about 17% change over to the exophthalmic type. Their treatment is watchful waiting, although a few are decreased in size by iodine and thyroid extract. Doctor Rowe would not treat small colloid goiters with the X ray, and no honest surgeon would operate upon them.

In regard to exophthalmic goiter, it is not endemic; it occurs north, south, east and west in equal numbers. It is probably a run-over from a colloid gland or developes as such independently.

It is a recognition of the different types of goiters that is more important to the general practitioner than the type of treatment. The exophthalmic goiter should be treated radically, either by the X ray or preferably by the knife; medical treatment has little influence, having no basic rationale.

A. R. Mitchell, M. D., Lincoln, Neb.: I have so much confidence in everything Dr. Rowe says I dislike to question anything that comes from him, but I may have been especially unfortunate for my own experience covering a number of years has been very much against the use of the X ray in the treatment of goiter. Referring to the remarks of Dr. Roeder I think the use of the X ray in these young girls who develope a little enlargement of the thyroid is a hazardous performance. I have had two recent cases where young school girls had a slight enlargement of the thyroid. I made the usual efforts with the administration of iodine and as much reat as possible to secure a reduction, there were no general symptoms, but a gradual enlargement of the gland. In both of these instances, the use of the X ray stimulated those glands to great activity. One was activated to such an extent that in two weeks after the use of the X ray there was a marked enlargement with exophthalmos, rapid heart, tremor, and all the other evidence of acute thyro-toxemea. In both cases operation was done with prompt relief and a promise of cure.

A. J. Brown, M. D., Omaha: Continuing what Dr. Roeder said in regard to toxic goiter. Aside from the colloid type, the second is the adenomatous type in which in the twenties, as a rule, a true adenoma develops within the gland and forms a nodular enlargement; but gives no constitutional symptom until a period of twelve or fifteen years has elapsed, when we find symptoms that are very much like those of the true hyperplastic type of goiter. Cases of this type are not exophthalmic goiter. There is a toxin which gives rise to symptoms similar to the exophthalmic type, but in the early stage, surgical treatment will completely remove the growth without removing the gland and X ray will destroy the tumor in many instances.

When we come to the true exophthalmic type, we find a hyperplastic growth of the epithelial cells of the thyroid gland which is general throughout the entire gland, is not nodular, and may cause a great enlargement of the gland; while in other cases it may not be particularly enlarged. Some of these cases are benefited by medical treatment. Some are benefited by X ray; others by surgery.

We must remember in treating this condition that the symptoms of exophthalmic goiter show remissions in their course, which have nothing to do with the treatment at all.

Dr. Crile a short time ago pointed out a sign that we can use in the surgical treatment of these cases. That is a preliminary ligation of one vessel — of one pole of the gland — preferably one of the upper poles. This can very easily be done under local anaesthesia. I believe no exophthalmic gland should be operated upon under a general anesthetic. That is where many of the deaths occur. A preliminary ligation of the upper pole in this ordinary case will give results in forty eight hours. The pulse rate will drop after the preliminary rise and the patient will seem better. If this occurs, it is safe under a local anesthetic to do a thyroidectomy. If it does not occur, the gland should not be removed and medical or X ray treatment should be instituted.

Dr. Rowe, Closing: I want to thank Dr. Rork for his opening discussion about the basal metabolism machine. I do not believe it will ever become as necessary in an office as a clinical thermometer. I think it will only be practical with men seeing a large number of thyroid cases. A man must have a certain volume of these cases coming to the office or his metabolism technique will be faulty. It is not difficult, but it is a technique that must be done frequently to keep within a safe percent of error.

The early recognition of thyroid disease is one point which I tried to emphasize.

I think I shall be a little critical of Dr. Christie. He sounded like a man speaking with little experience in the treatment of thyroid disease and very little knowledge of the later developments of the last five years.

I went through the literature very carefully in the preparation of this paper. I think I read the originals of probably one hundred men's writings. I found no record of fatalities, and only three or four cases of myxoedema. In two of those cases they had already come back to normal. In the other two, they were taking thyroid extract.

Many cases of thyroid, no matter how they are treated, will go through a period of hyothyroidism and must take thyroid. It is the common termination of the pathology and physiology no matter what treatment is received.

In reply to Dr Boyden, I think he belongs to the class of partisan surgeons when he compares Roentgen therapy of the thyroid with fibroids and carcinoma of the uterus. He says you all know the failures in those cases. I flatly deny that. I think even surgeons will bear me out when I say the greatest triumph in Roentgen therapy today has been in the treatment of properly chosen fibroids, and the only hope in carcinoma of the cervix is the deep Roentgen therapy being adopted in this country and abroad.

I want to thank Dr. Roeder for his kind remarks. Some one told me he was a fire-eater when he got to discussing the Roentgen treatment of thyroid cases. I think he handles the subject well and does not belong to the school of partisan surgeons. We have no quarrel with the surgeon or internist. It is only by the closest cooperation of all three we can get the best results. Those who have failed are those who have not had this cooperation.

One surgeon told me "an X ray man gave it one shot," and the patient was worse, and he had to operate. I do not call that careful Roentgen therapy. I think careful Roentgen therapy means accurate diagnosis of your case and recognition of the pathology, and careful observation, checking with the basal metabolism and stopping when it is time; and the proper selection of cases.

In reply to Dr. Mitchell, I can assure him there is a type of thyroid disease that needs no radical interference, and that is the type he mentions in the young.

In reply to Dr. Brown, I want to state the most brilliant results I have were with a case of adenoma of the thyroid. The man refused surgery. In this type the quickest way to get them well is to open the thyroid and shell out the tumor. If they refuse, you have the Roentgen therapy at hand.

I want to preach and advocate only conservative Roentgen therapy. Conservatism in the treatment of thyroid disease is the best rule to follow. Roentgen treatment is conservative treatment.

MEDICAL ASPECTS OF BRAIN TUMOR.*

G. Alexander Young, M. D., Omaha, Nebraska.

It is becoming recognized by neurologists that brain tumor is a frequent condition.

The Johns Hopkins Hospital autopsy records show that at that hospital tumors of the brain are exceeded in frequency only by tumors of the breast and uterus. Cushing with his unparalleled experience states that their frequency has not yet been fully appreciated.

Bruns estimates that they represent 2% of all cases of nervous disease.

I believe the prevalent opinion is that brain tumors are comparatively rare and when found that the patient's death certificate is as good as signed. This pessimistic view point, I believe, is unjustified, and depends on faulty or tardy diagnosis.

While their treatment at this time is exclusively surgical it is to be kept in mind that the outstanding feature in these cases is the necessity for early diagnosis and it is therefore incumbent upon the medical man to recognize the presence of symptoms suggestive of brain tumor as soon as they appear. It is the purpose of this paper to consider briefly the brain tumor problem as it is presented to the physician and to review the principles and data which make accurate and early diagnosis possible.

The care of a brain tumor case may be divided into four stages; the recognition of symptoms suggestive of tumor, differential diagnosis, localization of the tumor, surgical treatment.

SYMPTOMS SUGGESTIVE OF BRAIN TUMOR.

1. Symptoms indicative of focal organic change in the brain, which cannot be referred to traumatic, inflammatory, toxic, or vascular causes, and which show a gradual and progressive development, should always lead us to suspect brain tumor.

This rule can be laid down as a diagnostic principle and it is equally true even when the classic signs of increased intracranial pressure are absent as they generally are early in the case. It is also true that the progressive development may be so slow that the focal symptoms seem stationery and then the absence of other etiological factors should make us think of tumor.

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*Read before the Nebraska State Medical Ass'n., April 27, 1922.

Two cases may be quoted in illustration:

J. E., 34. Developed convulsions at the age of 22 which commenced in the right hand. After several seizures the convulsions ceased and the man enjoyed apparent good health until the age of 31 when they reappeared and continued as a focal type of epilepsy until his death at the age of 34. Headache developed six months before death and when examined by the writer four months later was found to be associated with choked disc, slow pulse and loss of cortical forms of sensibility on the right side with preservation of tactile and pain sense. Craniotomy revealed an inoperable glioma of the left parietal lobe and autopsy a month later showed an extensive subcortical glioma of the parietal lobe lying between the cortex and the basal ganglia. The convulsions at 22 in all probability marked the early development of the growth.

M. L., 40, developed deafness in the left ear without apparent cause and four years later showed vertigo, nystagmus, headache, choked disc and vomiting. Operation revealed a fibro neuroma of the left auditory nerve which was the cause of the four year old deafness and later pressure symptoms.

In both of these cases we see long continued focal signs which antedated the signs of increased intracranial pressure. Among other commonly observed focal symptoms we find, monoplegias, hemianopia, aphasia, sensory defects of cerebral origin, facial neuralgia or paraesthesia, cerebellar asynergy, anosmia, pituitary syndromes, focal spasms of various types, etc.

2. Symptoms of Increased Intracranial Pressure.

These symptoms are well known. They include headache, vomiting, choked discs, slow pulse and respiration, swollen superficial cranial blood vessels, mental hebetude in varying degrees. As a rule they develop slowly with the growth of the tumor but they may make their appearance suddenly and severely. There are two well recognized causes for this phenomenon.

First, the tumor may be situated so as to bring about a closure of the aqueduct of Sylvius producing a cerebrospinal fluid block and an internal hydrocephalus with rapidly developing pressure symptoms.

Secondly, hemorrhage is apt to occur in a cellular glioma with symptoms suggestive of cerebral hemorrhage. These tumors have many thin walled vessels and where degeneration of the tumor mass occurs these vessels are apt to rupture with symptoms of rapidly increasing pressure.

The diagnosis of brain tumor hitherto, has been in large part dependent upon the symptom triad of headache, choked disc and vomiting and yet so many cases of brain tumor run the greater part of their course without these symptoms that it would seem almost necessary to insist upon a diagnosis before this triad develops. We should at least take it to heart that brain tumor can be well advanced and recognizable without the development of headache, or of optic neuritis or of vomiting. For instance tumors of the motor and parietal areas not infrequently occur with normal discs throughout the clinical course of the case. And likewise, headache may be noticeable by it absence.

DIFFERENTIAL DIAGNOSIS.

Given the presence of symptoms suggestive of tumor, it then remains to exclude other conditions which our own experience and a review of the literature tell us have been mistaken for tumor. Among the conditions that have led to confusion we find nasal sinus disease associated with optic neuritis and headache, gummatous meningitis, ependymitis, acquired internal hydrocephalus, meningo-encephalitis of non luetic origin, progressive cerebral thrombosis, epidemic encephalitis of lethargic type with choked disc, multiple sclerosis, hysteria, brain abscess, cerebral hemorrhage, chronic arachnoiditis with cyst formation, pachymeningitis interna hemorrhagica or subdural hemorrhage. The term pseudo-tumor has been introduced by Nonne to designate those cases which run a course clinically resembling tumor but which at operation or at autopsy show no evidence of tumor, or of definite pathology. This question has been treated recently by Percival Bailey who takes the ground that these cases if examined by a careful pathologist would show findings microscopically responsible for the symptoms, as for instance, a lepto-meningo-encephalitis. Reichard in 1910 described a condition of brain swelling which also produced symptoms suggestive of brain tumor.

One not infrequently finds the presence of visual disturbances associated with choked disc, headache and vomiting and various symptoms of intracranial origin such as vertigo, tinnitus, ataxia, mental hebetude, slight ankle clonus, developing more or less acutely in the course of a few weeks or one or two months.

These cases may of course develop into true tumor cases but as in the following cases it may also be due to other causes.

Mrs. F. age 32, developed headache, vomiting, vertigo and at the end of about a month's time noticed failing vision. Examination by an oculist showed a left sided scotoma and double choked discs of 2½ diopters swelling. Neurological examination revealed a moderate left sided ataxia, Rombergism and diminshed tendon reflexes of the left side. Lumber puncture with a slender needle showed marked increase of pressure and negative spinal fluid findings in respect to Wassermann reaction, cell count and globulin. Her condition was greatly relieved by the puncture, the ataxia and headache disappearing almost at once. She had abscesses at the apices of several teeth and these were removed. With rest in bed her recovery was complete in a month's time and she is now well three years later. A diagnosis of ependymitis or serous meningitis was made.

Mrs. R. age 34, complained of headache and loss of vision. Examination showed an optic neuritis of 2 diopters swelling, vision of right eye 20—70, left eye figures at 4 ft. Neurological examination gave negative findings. Her symptoms were of approximately a month's duration. Skiagrams of her sinuses and teeth were negative but curettement of her ethmoidal sinuses and the use of 90 grains of sodium salicylate daily brought about a recovery. A final diagnosis of sinus disease was made in this case.

A. J. age 40, was admitted to the University of Nebraska Hospital Jan. 21, 1922, with a provisional diagnosis of brain tumor made by a competent internist. He complained of continuous headache of some months' duration. Ophthalmoscopic examination showed an optic neuritis of 1.5-2 diopters. There were no objective neurological findings otherwise. His blood and spinal fluid gave negative Wassermann reactions. He had a spinal fluid count of 20 lymphocytes, globulin was negative. He was married, had no children and his wife had had one miscarriage. He denied knowledge of having had syphilis. He remained under observation a month without change in symptoms. Finally he was given antisyphilitic treatment which resulted in rapid improvement in headache and optic neuritis. His present condition is excellent and ophthalmoscopic examination shows normal discs and fundi. Final diagnosis, probable cerebral gumma.

The following case illustrates the difficulty met with at times in making a diagnosis.

W. W. age 42, farmer, married, 3 healthy children. On Dec. 13, 1921 while at work he fell to the ground unconscious. He was stuporous for several days and suffered intensely from headache. His headache diminished in about ten days and he felt fairly well being up and about until Jan. 12, '22, when it returned with the same severity. At this time choked disc of 2 diopters swelling was noticed and he was admitted to the Methodist Hospital a week later. Objective neurological findings were negative except for choked discs. Lumber puncture gave a pressure reading of 350 mm. as against a normal 120, the spinal fluid was negative to cell count and globulin. Wassermann reaction negative in blood and spinal fluid. The day following his lumbar puncture his headache had entirely disappeared and has since remained absent. His choked discs, however, increased to 4 diopters swelling in the course of the next month in spite of absence of all subjective symptoms. A pneumograph of his ventricles showed normal contour and size excluding thereby an internal hydocephalus and a tumor sufficient in size to result in distortion of the ventricles. Treatment by the use of salicylates and daily doses of magnesium sulphate was instituted and the patient sent home with instructions to report in a month's time. A provisional diagnosis of communicating hydrocephalus of obscure origin was made but we were still open minded as to the presence of an unlocalized tumor. The progressive nature of the choked discs eliminated the diagnosis of primary cerebral hemorrhage as the cause of the continued symptoms although the sudden onset was suggestive of hemorrhage, either a typical hemorrhage or a hemmorrhage into a preexisting glioma. The possibility of a subdural meningeal hemorrhage with resulting block of the cerebro-spinal fluid pathway and a communicating hydrocephalus was entertained.

Recent reports from the patient, five weeks later, state that he is free from subjective symptoms though his discs still showed swelling of moderate degree. Note: Reports two months later indicate complete recovery of patient.

HEMATURIA AS A SYMPTOM.

Arbor D. Munger, BSc. M. D., Lincoln, Nebraska.

Case 1. Mrs. Wm. M., age 34.

Presented herself September 8, 1921, with complaint of suprapubic pain, dysuria, frequency and massive hematuria. She has suffered from indefinite bladder symptoms since 1915, at which time her symptoms were severely acute. At this time a pelvic operation was performed. In 1919 she had a severe exacerbation with hematuria, followed by a second operation for the removal of her appendix. She had lost considerably in weight during the last year before September 8, 1921, and was in a highly nervous state. Cystoscopic examination revealed three large papillomata of the bladder.

Case 2. Mr. O. D. H., age 38.

Referred to me March 20, 1920, with the complaint of blood in his urine. This condition had its inception in January, 1919, following an accident when he slipped and fell on a cement floor. Hematuria had been intermittent since that time, recurring every few weeks and lasting from one to three days. The present attack has been persistent for three weeks. The more recent attacks have been accompanied by a colicky pain in the left lower quadrant and lumbar region. Ureteral catheterization reveals an obstruction to the passage of the catheter in the intramural portion of the left ureter. X ray films reveal the presence of an apparent calculus in the lower portion of the left ureter.

Case 3. Mrs. Sylvia S., age 36. Musician.

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*Read before the Lincoln Academy of Medical Science, March, 9, 1922.

Continuation of Article by Dr. Young From Page 342

LOCALIZATION OF CEREBRAL TUMORS.

This is a complex but extremely fascinating chapter in neurological diagnosis. The prerequisite is familiarity with the finer anatomy of the nervous system and with the pathology of brain tumors in general. It is a problem which should be referred to the neurologist and neurological surgeon for while some tumors are readily localized, others require the closest scrutiny of the anamnesis, subjective and objective symptoms plus all the resources of special examinations to arrive at a correct interpretation. Dandy states that in fifty per cent of brain tumor cases localization is impossible by the anamesis and objective examination alone. To relate the known syndromes resulting from involvement of special locations would be impossible here. Mention only may be made of a few esscential points.

The earliest symptoms presenting themselves in the anamnesis are the most important as localization signs.

Early mental symptoms and late cranial nerve palsies indicate anterior chamber or cerebral tumors; early cranial nerve symptoms such as ocular palsies, nystagmus, deafness, vertigo, associated with intense headache and vomiting point to posterior chamber or cerebellar tumors.

In passing I would emphasize the danger of lumbar puncture in posterior chamber or cerebellar tumors. Don't do it when you supect tumor here.

Most careful perimetric examination of the visual fields for color and white light is indicated in every case.

The Barany tests of the vestibular apparatus may supply information of importance in distinguishing between cerebellar tumors and certain cases of anterior chamber neoplasm.

The most recent addition to our diagnostic armamentarium is Dandy's pneumography or ventriculography, by which he claims to be able to localize practically every case of brain tumor otherwise unlocalizable. This method of air injection into the ventricle has yet to be worked out more fully and it is probable that Dandy's hopes may be overly enthusiastic. In a recent article he says that in 200 air injections he has yet to fail in making an accurate localization. If such a statement can be verified satisfactorily we have here indeed a most valuable means of localization. Its accuracy and its possible dangers can be illustrated by the following case.

A young man of 30 developed headache which followed shortly after an attack of pneumonia. This rapidly became intense and six weeks after its onset he came under my observation. He showed a double choked disc, slow pulse and respiration, and absolutely no localizing signs. Syphilis and abscess were excluded but the rapid onset after an infectious illness suggested a possible hydrocephalus. A ventrictlography was carried out and 30 cc. of air injected. The plates were excellent but the patient died suddenly of respiratory failure eight hours later. The plates indicated a blocking of the anterior horn of the left ventricle and the autopsy revealed a sharply circumscribed sarcoma of the left frontal lobe.

SURGICAL TREATMENT.

Just a word here to mention the growing tendency to discredit the subtemporal decompression in the surgical treatment of brain tumor in favor of craniotomy on the basis of an earlier and accurate localization. I think the tendency is in the right direction. Craniotomy in skilled hands is no more dangerous than an abdominal exploration and we should lose whatever fears we may have had in respect to it and when we think of the tragic condition of late cases of cerebral tumor it would seem that we should be as willing to advise craniotomy as to advocate early excision of a cancerous breast.

DISCUSSION.

Karl Connell, M. D., Omaha: Being called upon by the Chair to discuss "Medical Aspects of Brain Tumor," I feel a decided reluctance, for the medical aspect, like the surgical one is a gloomy subject for discussion. Also from a diagnostic standpoint, I must confess. my views are darkened and prejudiced by my early training. I was surgical assistant under Dr. Frank Hartley, through the first decade of this century and I saw much of the brain surgery of New York City of that day. The cranial surgery of twenty years ago was discouraging, for diagnosis was uncertain, offering less than an even chance of accurate localization and the surgery of brain tumor was then, as now, a hazard and offered far less than an even chance of surgical relief. Yet occasionally a brain cys or localized fibroma made the surgical attempt well worth while.

It is illuminating and gratifying to learn through the presentation of the essayist that the modern methods of diagnosis and more particularly the air inflation of the ventricles with radiographs have materially helped in localization. Progress has been made in surigcal technique so that the surgical approach to the brain with the Hudson burrs, the modern bone biting instrument and motor saws. present problems no greater than the abdominal incision. The essayist is to be complimented on his presentation of the medical aspects of this discouraging field.

Sanford Gifford, M. D., Omaha: I want to ask what indications we have as to when a spinal puncture is safe. In these cases we would often like to do a spinal puncture, but are not sure whether it is safe. In cases where we are not sure, would a cisterna puncture be any safer?

I wonder whether Dr. Young has had any experience with using an intravenous injection of salt solution to lessen the danger from either a spinal puncture or exploratory operations?

Delmer L. Davis, M. D., Omaha: Far be it from me to try to discuss a paper so clearly and classically presented as this paper has been; but it has amazing to my sense of ignorance to hear the doctor make the statement as to the frequency of these tumors. I should like to have Dr. Young restate if he refers to neoplasms of all characters being their third frequency, relative to their location generally?

Dr. G. A. Young, Closing: With reference to Dr. Gifford's question as to the safety of lumbar puncture in cases of brain tumor, I would say this: In my opinion, in all cases suggesting tumor of the posterior chamber—of the cerebellum and of the pontocerebellar angle—and where the symptoms of vertigo, headache, and choked discs are present, we should stay away from lumbar puncture. Dr. Sachs of St. Louis says in no case of choked disc, no matter whether the case is one of anterior or posterior chamber involvement, should we do a lumbar puncture. Dr. Dandy makes practically the same remarks, saying you should do a ventricular puncture. I believe that in tumors of the anterior chamber lumbar puncture is safe if done slowly and with a slender needle.

With reference to the puncture of the cisterna magna by entering just below the occipital bone, I think the same objection holds, and probably the same rule. Dr. Ayres in his article advocating the use of cisternal puncture in many cases of neurological diagnosis, says in no case should it be carried out where there is indication of a brain tumor of the posterior chamber.

With reference to the device of using hypertonic salt solution for the purpose of reducing brain pressure, I would say that can be used, and you can also use glucose in the same way. A case observed recently illustrates the efficacy of the treatment. The patient came into the Methodist Hospital with signs of intense intracranial pressure which I diagnosed as a posterior chamber tumor or abscess. The patient had an atrocious headache, was dehydrated, and had been vomiting constantly for days. She required a suboccipital decompression, but was in no shape to stand it. Morphine could not be given for the headache owing to the danger of respiratory failure.

In hopes of improving her condition and relieving the headache, in this particular case we gave intravenously 500 cc. of Fisher's solution, plus fifteen per cent of glucose, and continued the injection through an hour's time, taking several minutes to give the first cubic centimeter. The result of that injection was to stop the headache immediately, and the patient remained in good condition for twenty-four hours. Then the headaches came back with the same severity. It was decided to give another injection of the same nature, and during the period of freedom, decompress. About five minutes after starting the second injection, the patient stopped breathing. With artificial respiration she commenced breathing again in fifteen minutes and the injection was completed. Relief was again obtained and she went through the operation next morning very nicely with local anesthesia.

With reference to the question of Dr. Davis, I am not in position to say what class of tumors these cases represent. I would say this: In all probability they refer to all types of tumors involving the brain, in comparison with all other types of tumors involving the rest of the body, either malignant or benign. I myself have wondered with reference to that statement whether or not Dr. Cushing's and Dr. Dandy's work at Johns Hopkins Hospital where they have a good many brain tumors, might not have something to do with the prevalence of the brain tumor cases in their autopsy room.

Presented herself May 19, 1921, with the complaint of backache, hematuria, dysuria, extreme weakness, night sweats and daily afternoon rise in temperature 99 to 100 degrees F. Five years ago she had what was diagnosed as pulmonary tuberculosis. Two years ago she had backache, dysuria and hematuria, which lasted about two months, accompanied by a regular afternoon rise in temperature. She has had chronic cystitis ever since. Six weeks ago she had an attack of acute abdominal pain. The diagnosis of surgical abdomen was made and she was operated upon, but she does not know what was done. After a thorough urological examination a diagnosis of tuberculosis of the left kidney and tuberculous cystitis was made. The right kidney was apparently unaffected and functionally normal. There was no evidence of pulmonary affection.

Abstracts of the histories of these three patients have been presented because of this very important symptom, hematuria. Too often this symptom is regarded lightly when it should receive serious consideration.

Each of the above cases represented a separate, definite pathological entity as the basic cause of bleeding, each of which the profession recognizes as a serious lesion when diagnosticated, and yet they were treated palliatively by their physicians through a period ranging from one to five years with no effort to ascertain the cause—either through ignorance or because this was the course of least resistance. It is not necessary that one be familiar with all the various causes of hematuria, but all should be familiar with the conditions which are more important and more often encountered and which, when diagnosed in the early stages, are amenable to correction. Furthermore, we should have a proper appreciation of the relative importance of these various conditions.

Excluding nephritis, trauma, urethritis and "unexplained" hematuria, the majority may be grouped under what we call the "surgical conditions"—stone, tumor and tuberculosis, in order of their frequency.

It is characteristic of these three conditions that there are certain symptoms in common: hemorrhage of an intermittent type, periods in which there is an entire freedom from symptoms, and cystitis. But by analyzing the patient's history and by making a careful examination, some definite conclusion as to the nature of the pathological condition can usually be arrived at.

Calculi may appear in the kidney, ureter or bladder. Not infrequently the vesical calculi have had their origin in the kidney, and after reaching the bladder become enlarged by the addition of precipitated urinary salts.

A stone may be present in the kidney for years without causing much discomfort; the presence of blood or pus in the urine may be the first indication, or the accompanying colic of passing the stone into the ureter may first call attention to its presence. The passage of the stone is commonly accompanied by a frequent desire to urinate, and the urine is discolored with blood. The bleeding may come on in slight amounts, giving the urine a smoky color; or the urine may be free of blood for days until, after some sudden exertion or a prolonged ride, a considerable amount of bleeding takes place.

Passage of the stone in these cases makes the diagnosis certain. Given this symptom complex, if the stone does not pass we are derelict in our duty if we do not resort to diagnostic confirmation by the X ray and ureteral catheter, or both if necessary.

As every stone in the kidney causes ultimate destruction of the kidney in time, and may induce suppression of urine by blocking the ureter, or occasion a perinephritic abscess, its immediate removal is demanded as soon as diagnosis is made.

Vesical calculus may remain silent for years. When symptoms are present the patient complains of pain, sudden stoppage of urine, frequency (especially during the daytime), pus in the urine, and frequent attacks of bleeding. The bleeding usually bears some relation to trauma and activity. A tumor often bleeds at night while the patient is lying in bed, while the hemorrhage associated with stone is usually induced by activity. It rarely appears in large quantities in the urine, but a few drops are squeezed out at the end of urination, or it may be mixed with the urine, giving a smoky color. It is not a constant symptom, but intermittent. The stone itself may frequently be palpated with a sound. It can be detected usually by a careful cystoscopic examination, and in the majority of cases casts a definite X ray shadow.

Of the tumors of the kidney, by far the most frequent is hypernephroma. Primary renal tumors are almost always unilateral. Carcinoma, sarcoma, embryonic tumors, cysts and benign growths are decidedly less common.

It is not common, in the case of a tumor, to find blood in the urine early in the course of the disease, but it may appear as the sole early symptom in about 25 per cent of the cases. The physician, consequently, should not be too prone to rule out a suspected renal tumor upon learning that the patient has never had a hemorrhage.

Tumors of the bladder are much more common than those of the kidney.

With both benign and malignant tumors of the bladder, hemorrhage is commonly the first symptom. It may be slight at first, but is usually profuse and more marked at the end of micturition. The hemorrhage comes on suddenly and without provocation, and may last for a few hours or some weeks and then cease and the urine remain free from blood for a varying length of time, only to be followed by a recurrence of the hemorrhage. The quantity of blood lost is variable and fluctuating, but as the tumor grows larger more blood is lost. In the early stages the bleeding may be confined to the loss of a few drops after urination, but later it becomes so profuse as to color the urine throughout, or even to form large clots, which cause great distress from the efforts of the bladder to expel them. The nature of the tumors cannot be determined by the severity of the hemorrhage, for simple polyps often bleed profusely and a carcinoma may cause very little hemorrhage. The almost universal probability of degeneration of a benign growth into a malignant condition should always be kept in mind, and its presence bespeaks the necessity for early diagnosis.

The diagnosis is usually suggested by the history, and can readily be confirmed by a cystoscopic examination. In tuberculosis of the kidney the symptoms are slight at first, —usually some increased frequency and burning on urination. Associated with this there may be a small amount of pus and microscopic blood in the urine. Profuse hematuria may occur, but not necessarily. A free hematuria usually denotes ulceration at the apices of the pyramids.

When cystoscopic examination reveals bladder ulcerations, especially around the orifice of the ureter, ureteral catherization with differential functional tests is indicated. Guinea pig inoculations should be made with catheterized specimens. The tubercle bacillus stain should be resorted to.

Expectant treatment in tuberculosis of the kidney is bad and leads to a very high mortality. Early diagnosis and operative interference before involvement of the second kidney leads to very excellent results.

I have purposely left until the last the consideration of hematuria occurring from the more uncommon lesions. These may conveniently be grouped under causes general and local.

The pathological conditions which may be considered under the heading of general causes may be grouped first under any severe infection, such as typhoid fever, scarlet fever, small pox, influenza—in fact, any infective condition which causes inflammation and congestion of the kidneys. Second, we may consider the toxic agents, such as turpentine and phenol. Third, diseases of the blood and blood-forming organs—scurvy, purpura, hemophilia, the anemias, and leukemia.

Of the local conditions, trauma of the kidney and bladder, varicosities in the pelvis of the kidney and bladder, constriction of the renal veins, infarction of the kidney, simple pyelitis, prostatitis and urethritis may be looked upon as causes of hemorrhage. Blood coming from the prostatic urethra is likely to occur at the end of micturition, due to the downward pressure of the sphincter on the inflamed area. If bleeding has its origin in the urethra anterior to the prostatic portion, it will appear at the beginning of micturition and the last urine passed will be clear.

The so commonly called "essential hematuria" is a blanket term which covers an idiopathic cause. Davis recently very aptly termed it "unexplained hematuria." The term is an admission of our inability to find the cause, and possibly too easily serves the average physician in the majority of his hematuria cases.

Let us briefly consider the cases presented. The first case dates her first symptoms of bladder disturbance from 1915, at which time she had suprapubic pain, dysuria and frequency, which resulted in a laparotomy for correction of some supposed pelvic trouble. In 1919 there was a sharp recurrence of her chronic trouble, this time with hematuria, which resulted in an operation for the removal of her appendix. During September, 1921, she presented herself in the throes of an acute exacerbation of her condition, with massive hematuria.

Fortunately this woman's bladder tumors had not degenerated into a malignant condition. Under fulguration they have rapidly disappeared and she has gained thirty pounds in weight and is now three months pregnant, with entire freedom from all her long-standing symptoms.

The second case is the typical picture of a renal calculus in its attempt to pass down the ureter. The calculus had become lodged in the intramural portion of the left ureter. This patient had been treated palliatively. Should the ureter have become dilated around the stone in this position and the condition become symptomless, one can easily conjecture the ultimate trouble which would come to this kidney. The stone was surgically removed, with complete recovery to normal.

The third case presents a sad commentary upon the sermon this paper is trying to impress. Following nephrectomy of a caseous left kidney the patient made a very good recovery. The bladder was rigidly persevered with and for a period of several months she steadily improved to apparently normal health and vigor. Last week she again presented herself with a feeling of lassitude and frequent urination. She appears in good health, she has no pulmonary symptoms or findings. She does have definite evidence of trouble in her one remaining right kidney. It is tuberculous.

In my judgment this situation is for the most part inexcusable. Five years ago, three or even two years ago this young woman should have had her chance to live, but now there is no escape from her scheduled destination . Here we have the result of palliative treatment throughout a period when search should have been initiated for the cause of the essential bleeding.

DIAPHRAGMATIC HERNIA.*

By J. R. McKirahan, M. D., North Platte, Neb.

During the past few years interest in hernia through the diaphragm has received marked stimulation for two definite reasons. First, hernia through wounds of the diaphragm has been observed during the Great War in a comparatively large number of cases because of the penetrating and explosive force of high powered modern missiles. Second, the X ray, with its greater range of efficiency, has demonstrated this pathologic condition, heretofore mostly determined only at operation or autopsy.

A review of the literature on hernia of the diaphragm shows a substantial and progressive increase in the number of cases discovered and cured. The unexpected is less frequently met at operation and there is abundant evidence to indicate that the mortality figures have been reduced strikingly within a decade. Yet the clinical diagnosis is no clearer than it was heretofore and this paper and case report are presented to call attention to the fact that this condition may be mistaken for very much more frequent conditions and so a fatal error in treatment be made.

ETIOLOGY.

Anatomically, the diaphragm presents points of weakness which are consequently the most frequent sites of rupture. The junction between the ensiform process and the costal cartilages is devoid of muscular tissue, as is the space posteriorly between the psoas muscles and the ribs; therefore these regions often mark points of entrance of hernias into the thoracic cavity. Congenital defects in one or both domes of the diaphragm may occur. The usual pathological lesion seen, however, is an absence of muscular tissue around the oesophageal foramen. This congenital opening may be large or small and will be limited laterally by the pillars of the diaphragm.

The exciting causes of acquired diaphragmatic hernia fall under two heads; namely, increased intraabdominal pressure and direct injury. Increased intraabdominal pressure is seen in crushing accidents, long and difficult labors, persistent straining at stool, pertussis, etc. Direct trauma to the diaphragm is necessarily secondary to penetration of the chest or abdominal wall.

CONTENTS.

A rupture of the diaphragm having occurred, either from congenital or acquired causes, there exists a direct communication between the abdominal and thoracic cavities. Because of the negative pressure in the chest, during inspiration, and positive pressure in the abdomen the hernia always passes from the abdominal to the thoracic cavity. Due to the position of the liver we almost never find a hernia on the right side and the organs that pass through are, therefore, the contents of the left side of the abdomen in this order; first, and most commonly, the stomach, then the great omentum, then the colon, spleen, and lastly, in some rare cases, the small intestines.

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*Read at Cambridge, Neb., May 25th, 1922 at meeting of Republican Valley and Tenth Counsilor District Medical Society.

SYMPTOMATOLOGY:

There is perhaps no condition that is so difficult of recognition clinically as diaphragmatic hernia. Generally speaking there is no definite symptom complex. In either the acquired or congenital types the symptoms must depend largely upon the size of the opening, adhesions, the organs in volved and the degree of constriction. As a rule the symptoms are not commensurate with the anatomical defect. In the acquired type, the symptoms are apt to be acute in accordance with the etiological factor entering into the cause of the rupture. In the congenital form of hernia the symptoms are generally chronic in character, accentuated at times by functional disturbances. In hernia of the stomach there is usually stomach distress daily, or coming on at intervals of weeks or months. The daily distress may be associated with pain after the ingestion of food, simulating somewhat the picture of ulcer, sometimes that of gallstone disease or, associated with vomiting, may resemble pyloric obstruction. Occasionally these patients have pain only at long intervals and then apparently only when they have overeaten or eaten something that disagrees with them. The pain may be particularly excruciating and suggest strongly the possibility of acute gastritis or gallstone colic attacks.

The clinical picture of the cases in which the colon is involved may be suggestive of appendicitis or beginning obstruction due to carcinoma; a partial obstruction relieved by cathartics and enemas with a disappearance of the symptoms, and then a recurrence after an interval of days or weeks. Strangulation of the small intestine or the colon gives the picture of intestinal obstruction from an unknown cause unless definite evidence of a diaphragmatic hernia can be obtained.

Summing up, we may expect symptoms that would follow a mechanical displacement of abdominal viscera from their normal abode to an adjacent cavity. A careful history should be taken and a very careful analysis made of the evidence obtained. A thorough physical examination, especially of the chest, in all abdominal conditions will many times be the means of avoiding error in diagnosis. It is surprising how frequently we find a negative chest reported in the physical examination of those patients who have died from strangulated diaphragmatic hernia. A definite diagnosis must rest on fluoroscopic examination and the taking of roentgenograms, but a proper interpretation of the history and physical findings is necessary to direct us to the X ray.

Pneumothorax, subphrenic abscess and diverticulum of the oesophagus must be considered in the differential diagnosis.

TREATMENT:

Surgery is the only curative treatment of hernia through the diaphragm. At present there are two sites of approach, the thoracic and abdominal, and certain conditions may require a combination of the two. The abdominal approach is best made through a long S-shaped incision in the left nectus. It allows inspection and repair of a gap in either side of the diaphragm and is the route of choice whenever injury to a hollow viscus is suspected. Thoracotomy affords a more direct approach, allows the separation of adhesions under the eye of the operator, causes less shock and operating on the convexity is more simple than suturing within the concavity of diaphragmatic dome.

In the congenital type, without symptoms, in which the condition is discovered accidentally in making a gastrointestinal examination, the question of the indications for surgical interference would be relative rather than positive, and one would want to study such cases with great care and determine absolutely that the condition presented a sufficient menace before undertaking any operation for its correction.

CASE REPORT.

Young man, age 23, American. Family history. Negative.

Previous history. Birth was normal. As a child was rather delicate. Had frequent attacks of indigestion and was always short of breath on exertion. Usual diseases of childhood with a rather severe attack of scarlet fever. No history of any respiratory disease or severe injuries. Of late years has had irregular attacks of pain in right lumbar region with nausea and distress over stomach. These attacks were accompanied by constipation and had been diagnosed as appendicitis. Patient had been examined by his local draft board and general examining board at camp and was accepted as fit for general military service.

Present Illness: This attack was very similar to previous ones and his regimental surgeon marked him "Appendicitis Suspect" and sent him to the Base Hospital. Here his examination showed a young male, well developed, complaining of pain in right side of abdomen and in epigastrium. Abdomen tympanitic, right rectus increased rigidity, nausea but no vomiting, no bowel movement for two days.

Chest examination: Respiratory rate increased, no rales, lungs normal. Heart rapid, no murmurs, heart seems to be somewhat displaced to the right. Temperature 99.8°. Urinalysis negative except for increased indican content.

Blood examination: Leucocytes 12,600 with very slight deviation from normal in the differential count.

A diagnosis of acute catarrhal appendicitis was made and patient was operated on within two hours after reaching the hospital. Surgeons report noted appendix free from adhesions but lying high in the abdomen, on a level with the umbilicus. Pathologists report, normal appendix gross and microscopical.

Two days after operation I saw the patient at which time he presented a typical picture of acute intestinal obstruction with comparatively little peritonitis. Patient was in extremis at this time and died soon after. At autopsy about one third of stomach, all of the great omentum and transverse colon were found, greatly distended, lying in the left pleural cavity; having passed through an opening, about 3 inches in diameter, in the left dome of the diaphragm. The left lung was completely compressed under the left clavicle. This was evidently a congenital condition.

This case forcibly illustrates the fact that there is perhaps no condition that is so difficult of recognition clinically as diaphragmatic hernia and lends support to the probability of its more frequent occurrence in even the presumably healthy. If there is anything of more interest in this case it is the fact that a patient with a very large diaphragmatic hernia can get about with comparative comfort and successfully pass through repeated medical examinations without the condition being discovered. This knowledge should lead to greater care in physical examinations. Of course there is nothing like the X ray for giving us final information, but we must be led to its use by the physical findings and the tentative clinical diagnosis.

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THE ACUTE ABDOMEN.*

H. B. Boyden, M. D., Grand Island, Nebraska.

The acute abdomen has been the cause of many avoidable deaths, and is a big factor in the mortality statistics of surgery. The prompt recognition by the physician and the immediate action of the surgeon must be brought to bear in order to save many of these cases; and what greater pleasure does our profession receive than to have acted in time on this, the most serious condition, with a remedy effective only if administered in time.

Why do we see cases of septic peritonitis? Why do we see gangrenous bowel? Why do we see a plastic fibrinous peritonitis? Because in turn prompt intervention has not been used, as for example; on an acute appendix, an intestinal obstruction, and an intraperitoneal hemorrhage. What is the source of error? It is diagnosis, and it is bedside diagnosis, not laboratory. What are the important weaknesses in our diagnosis? They are: First, the failure when you first see the patient to take out your pencil and note book as you were fundamentally taught as an interne, and write the story of the illness—both past and present. How many times you will be gratified in doing so and be able to say to yourself "That would have been overlooked if I had not done this." The art of anamnesis is lost with most of us.

Second: We are slow to reach a decision and all acute conditions of the abdomen are more easily recognized the sooner they are seen and as complications develop the more masked the underlying condition becomes and a greater amount of confusion confronts us.

Third: Delay in intervention after recognition, by waiting for a more favorable hour which does not frequently arrive.

Fourth: We forget that our senses of sight and touch are the essential factors in diagnosis and laboratory methods and equipment sometimes baffle us in their complicities.

I have emphasized the importance of the history and, as most acute conditions are a sudden expression of a grave nature of a chronic pathological process, this fact must be carried in mind as it helps in making a diagnosis in these emergency cases.

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*Read before the Custer County Medical Society, May 3, 1922.

For our next consideration, I wish only to emphasize some of the A. B. Cs; the patient's view of his problem, our inspection and important symptoms, which we all understand but which carefully analyzed and correlated will portray the picture clearly.

First: I want to emphasize the patient's own conception of his illness which we are often prone to discount, but an anxiety or gravity will be expressed by him out of all proportion in consequence to any of his or her previous experiences, and he, speaking of the more severe sex, will say "Doc, I am damn sick" or "The stuff is off."

Second: An inspection will reveal the picture of a sick man; the facies arouse your suspicions. If infection is the predominant factor, the patient will have a red face or cheeks slightly violaceous in hue; if especially grave, will be anxious, have a dry tongue and be in pain. If shock exists, the pallow will be striking an expression of death. If hemorrhage is the urgent factor, the patient is pale, restless and thirsty, and air hunger is the guide, the latter symptom of extreme import in the diagnosis of urgent internal hemorrhage, especially, wherein shock and hemorrhage coexist.

Pain, as a rule, begins abruptly and is acute and is or has been intense, and the location, when first experienced, is often helpful. Rigidity is the most important physical finding. You should put your hand on a belly and say "This is surgical rigidity," and act with that conviction ere peritonitis develops, distension appears and rigidity disappears. (Rigidity existing rules out especially tabes, pleurisy, pneumonia and lead poisoning.)

The pulse is of more import than the temperature; that bounding pulse of infection; the airy, rapid pulse of hemorrhage; the rapid, wiry, peritonitic pulse. Watch closely an increasing pulse rate.

How Surgically to Meet the Acute Abdomen: In a general sense do just what is necessary to meet the immediate condition and do it with dispatch.

Rapidity and gentleness must harmonize to lower the mortality in this class of cases.

In order to bring out the points of surgical decision, I will especially consider the more urgent and common types, however, not from a detailed viewpoint.

First: A perforated bowel is the most urgent condition that we are called upon to treat and "must be operated on within twelve hours" should be your first thought on making this diagnosis. Closure of the perforation and drainage should suffice.

Ileus: Dynamic in type, must be operated on early as delay means enterostomy or resection. The history of these cases is absolutely necessary for prompt and proper recognition.

Pain, vigorous peristalsis and focal vomiting developing are always present as the important symptoms.

Septic Ileus: Usually the result of delay in attending to another acute condition of the abdomen calls for a jejunostomy and drainage of the bowel. This operation can be performed as a life saver when acute obstruction has been neglected until a more definitive operation is hazardous.

Acute appendicitis: The most common cause of an acute abdomen and an operation should be performed within twenty four hours in all cases as seemingly mild cases at the onset have many berths in the cemetery. If delayed beyond forty eight hours it is best to await localization excepting development of general peritonitis which must be operated on as soon as met.

To the infrequent operator a right rectus incision is safer, however, a muscle splitting incision one inch from the spine of the right ilium is the exact approach and places the drainage more direct with less peritoneal contamination, and is more expeditious, excepting the guide you might have by local tenderness or bulging.

Placing the patient flat on the belly for twenty four or thirty six hours gives more prompt and productive drainage.

Gallbladder: From the standpoint; do not operate on an acute gallbladder excepting gangrene, perforation, empyema or impacted stone in cystic or common duct and these cases must be operated on at once to save any of them and do not let the axiom of operating between attacks permit your overlooking these urgent conditions too long.

Traumatic Abdomen: With profound shock combined with a ruptured viscus or hemorrhage requiring operation immediately I would advocate spinal anesthesia as surgical shock is lessened and under other methods many of these grave injuries will only thus be saved.

This opinion I have not positively confirmed.

Relative to the importance and advisability of the excision of the nidus of infection or necrosis with the appendix especially in mind remove it as drainage is prolonged, convalescence delayed and recovery more doubtful, and only in exceptional cases should there be any diverse viewpoint.

Relative to drainage: For a mild case use a gutta percha cigarette drain. For consequential drainage use a rubber tube without gauze in it. For desperate cases use gauze in addition to the tube drainage but remove in twenty four hours as the gauze then acts as a nidus of infection, being a plug.

When in doubt do not hesitate on an exploratory operation on an acute abdomen.

About 90% of cases even in the hands of the overaweing experts and clinicians are diagnosed simply and laboratory, X ray basal metabolism and christian science and superstition are waived. And further, all doctors, including we non-experts, are too prone to prove ourselves right and feel that we must give out a positive diagnosis when the big, humane thing is to say "I am not just sure," and not be egotistically stubborn in changing our opinion, as this persistent attitude will eventually trip up our dignity and these are factors causing delay in handling the acute abdomen. How much better is the X ray opinion of a man who is a combined clinician. However, give the credit to the doctor, not to his facilities.

Almost as an appendix, a leucocyte count will exceptionally hasten your decision as to the urgency of an acute gallbladder or appendix.

A red count will sometimes hasten the diagnosis of internal hemorrhage. A urinanalysis, if only a simple inspection, should in most cases be carried out as there are kidney conditions producing all the earmarks of an acute abdomen from other causes.

The laboratory and the various devices used by specialists are helpful and they are necessities occasionally; but do not we physicians act toward these opinions as a man from the country does when he first "rubbers" at a sky scraper, let them "buffalo" us and stop thinking?

The problem of anesthesia should be mentioned in conjunction with the handling of the acute abdomen. In all cases, regardless of the anesthesia employed, a preanesthetic hypodermic of morphia should be administered and many cases will be saved if ether is avoided as it produces a peristaltic rest, in some cases even an ileus, and in addition, is a material factor in dehydration, which is the cause of many deaths. I believe that local anaesthesia is indicated in all cases wherein there is little traction on any viscus and spinal anesthesia should be more used. Nitrous oxide is far preferable to ether as an anaesthetic.

FRACTURES OF THE RADIUS.*

W. L. Sucha, M. D., Omaha, Neb.

I do not expect to tell this society anything new about fractures of the radius, neither would I presume to tell this body of men anything they did not already know about the anatomical relations of the radius for I know of nothing new about the anatomy of this so often unfortunate bone.

I am, however, hopeful that, by the reiteration of some of the fundamental principles of the mechanism involved in the production and the proper reduction of fractures of this bone, I may succeed in extricating from the various nooks of your memory centers a few important facts and welding them together, so to speak, into a rememberable chain that might some day result in an able arm where a disabled one otherwise might have resulted. If I am successful in this endeavor, I am sure I will be proud in the belief that I have done some good.

I have been very much enthused during the last few years in thinking of the deformity of any given fracture as the result of a muscle or several muscles doing their work well rather than to look upon it as a bone that has failed, because: In the first place that is the true condition. In the second place it is far more interesting and this leads to the third and most important phase of the whole thing. It immediately gives you an interesting hypothesis upon which to work out your salvation.

Therefore it is from the above standpoint that I expect to consider the subject. To do this we must first consider briefly the anatomy of the radius particularily as to its function and with special emphasis on the muscles attached to it, as it is from the attachments and functions of these muscles that we expect to derive our information as to the production and reduction of the deformities produced by its fracture. It is a long bone with a small circular head on the surface of which is a shallow almost circular depression which has a tendency to look slightly outward. There is a short neck about 2 cm. to the bicipital turberosity. The shaft is that of any ordinary long bone, the lower extremity bends slightly forward ending in front in a prominent ridge to which the capsule is attached. The styloid process is a blunt point.

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*Read before the Nebraska State Medical Assn., Omaha, April 26, 1922.

There is one peculiarity about the radius I wish to mention as it bears some relation to one of the group of radial fractures i. e. the upper epiphysis does not become fully ossified until the 15th year and is united to the diaphysis at the beginning of the 16th year. It is therefore among the last of the epiphyses to ossify and the first to join its diaphysis.

In an attempt to review only a little of the recent literature I find that not only articles but volumes have been written on these fractures especially those of the lower one-third. These, however, in the main deal with cause and treatment of individual fractures, reports of cases, special splints, etc., which are all points outside the scope of this paper.

My intention as expressed in the title, is to discuss merely the musculo mechanics of the production and reduction of deformities occurring in fractures of the radius. From this view point there can only be four fractures of the radius, those above the insertion of the biceps; those below the insertion of the biceps and above the insertion of the pronator-radii-teres; those below the pronator-radii-teres and above the pronator quadratus; those below the pronator quadratus.

First, the one above the insertion of the biceps. This is the least common among fractures of the radius and the force applied in its production is usually a combined pull and twist as in lifting a child up a step by one hand. Given this fracture what will be the deformity? Since no motive ligaments or tendons except a few fibers of the supinator brevis are attached to the epiphysis, the orbicular ligament which hugs it closely usually holds the short proximal fragment in a fairly fixed position although it may be slightly supinated.

The long or distal fragment is always displaced rather acutely forward due to the traction of the powerful biceps. To correct the deformity then we must flex the arm to relax the biceps and with a small pad hold forward the short fragment for alignment with the shaft of the bone. This is usually not at all difficult (owing to the fact there are no strong muscles making traction thereon).

2nd. Those below the insertion of the biceps and above the pronator-radii-teres. Here the biceps pulls up the upper proximal fragment and the supinator brevis supinates it, the two pronators pull in toward the ulna the lower fragment at the same time rotating it inward. Therefore to reduce you first pronate to relax the two pronators but not too far because the upper fragment is supinated. This lets the radius away from the ulna and allows it to rotate back to its normal plane, Flex the arm to align the lower fragment with the upper and dress the arm in moderate supination and flexion.

3rd. Those occurring between the pronator-radii-teres and the pronator quadratus. Here the biceps still plays a leading role so far as misplacement of the proximal fragment is concerned. Flexing it so that the lower end of this fragment can sometimes be felt just beneath the skin on the front of the forearm slightly above its middle. It is also slightly pronated by the pronator-radii-teres. To reduce, flex the elbow to relax the biceps, pronate to relax the two pronators, forcibly adduct the hand to further throw the upper end of the lower fragment away from the ulna. Dress the arm in this position, that is, flexion of the elbow to a right angle, pronation to the position of the palm facing the body and the hand in extreme adduction.

4th. Fractures below the pronator quadratus. This is the fracture upon which every volume of current surgical literature contains not pages but chapters. Many of the articles are masterpieces depicting in detail long series of cases embracing a seeming endless variety of complications, accurately classifying and minutely describing every kind of a break as to direction, number, through the articulating surface, etc. Another group will deal each in its turn with some pet kind of a splint. These articles are all highly instructive, masterpieces of detail and monuments to the careful, painstaking study and scholarly ability of their authors. Yet in this most masterfully discussed of all fractures, a mindfullness of the musculo-mechanics is the all important thing to remember if you will handle them well.

The musculo-mechanics here are chiefly important by virtue of their absence in so far as the production of the deformity is concerned. True enough the pronator quadratus does have a tendency to pull the long fragment towards the ulna but the deformity is almost directly dependent upon the direction of the violence. That is, if the force is applied to the front of the hand, the lower fragment is displaced backward (silver-fork). If to the back of the hand this fragment is displaced forward (gardner's spade). Drawn so by the attachment of the strong anterior common ligament which is attached to the lower end of the radius.

Remembering that the deformity here is the result of the nature of the force applied and not the action of any particular muscle or muscles, reduction once properly accomplished will in most cases "remain put" so to speak and no special position necessitated. According to the late Dr. John B. Murphy a Colle's fracture properly reduced should remain so without any dressing.

In conclusion I wish to say just a few words about the vast number of pet splints for some of these fractures. For the purpose of fixation the medical profession would be better off and the number of poor results much reduced if every patent splint was forced from the market. I have two reasons for believing the latter to be true. First of all, no ready made splint will fit any given arm. I know a lot of surgeons who would not think of wearing a hand me down suit and yet they apply ready made splints to their patient's fractures. Second, no splint no matter how applied will reduce a fracture and there is bound to be a tendency when using a splint guaranteed (by the salesman) to give a perfect result, to apply the splint and rest on one's oars expecting the splint to get the result.

I say, therefore, that any splint to be used for fixation purposes should be made to fit the individual member, preferably of plaster of paris. Now when you want extension as one so often does, in a forearm especially when both bones are broken or when there is threatened shortening of the radius or in compound fracture. I know of nothing so applicable as the splint designed by Dr. J. E. Thompson of Lincoln which I am going to ask him to demonstrate to you in his discussion.

I have here some splints made to fit Dr. Little's arm the way I always make them from plaster of paris, one is for fixing the forearm and wrist only, the others are for fixation of both the elbow and wrist with the forearm in different degrees of supination or pronation.

In depending upon plaster of Paris to fit a fracture, all you need is three rolls of plaster of Paris and you have a splint for every bone in the body.

(Shows splint made to fit a certain arm).

It is not heavy, and yet fairly strong. I take a plaster of Paris bandage and run it back and forth and mould it to the arm after I have made my reduction. You can put the arm in pronation or supination, and make it fit any arm.

DISCUSSION.

Robert D. Schrock, M. D., Omaha: To demonstrate the details of a splint as used by some one else is impossible. To demonstrate the general principles is all we will be able to do. Each individual man will have little details that are essential in order to make the splint entirely efficient; and it is the inability of the second man to use that same detail that gives rise to the inefficiency of so many splints in the hands of the greater number of men.

We have simply the principle of the Thomas splint—heavy wire, with a protecting pad, giving a base against which to pull. It is the Thomas splint idea applied to forearm traction. It is a simple wire with a tin flange fitting against the anterior aspect of the forearm for the purpose of making accessible the wounds in a compound fracture of the forearm. For simple fractures, there is no use for the existence of the splint. For compound fractures, accessibility to the wounds is the reason for its existence.

Traction is made with two adhesive bands of any material: traction and counter-traction must be kept under observation because this splint is not fool-proof. Observation should be made at least twice in the twenty-four hours and readjustments of the splint made as necessary.

Dr. Thompson has devised this splint to permit ambulatory treatment. All upper extremity fractures have come to be regarded as ambulatory cases. This has arisen from the demands of the patients and the inability of the doctor to keep the patient in bed. Satisfactory results are sometimes sacrificed in meeting this demand.

One essential must not be overlooked in the use of this traction splint for the forearm. The elbow must be fixed so flexion and extension are not possible, or at least, the range of motion must be very slight. With the splint applied when the elbow is flexed to ninety degrees, extension at the elbow will diminish the traction unless the metal plate is firmly fixed to the arm. This splint was devised as a means of obtaining traction on a forearm for that period of time when the wound in a compound fracture is the most essential element. When the wound is well controlled, a more efficient fixation is applied. For simple fractures this splint is not necessary.

I think Dr. Sucha should emphasize even more the use of the molded plaster splint which he demonstrated. These plaster splints cost little; a universal fit is easily obtained; their efficiency, as with every splint, depends upon the manner of application. That is the personal element that is up to the doctor.

SECOND RUPTURE OF THE UTERUS COMPLICATING PREGNANCY.*

F. B. Young, M. D., Gering, Neb.

In July, 1918, Mrs. R. C., age 34, married, came to my office with a history of three months' pregnancy. This was the third pregnancy; her first child, male, still living, having been born December 4, 1910, delivery normal in every way; second child, male, born August 8, 1915, forceps delivery with rupture of the uterus. She had no history of miscarriage or menstrual irregularity of any kind.

Physical examination showed a well built woman, well muscled and fairly fleshy. The viscera were all apparently normal except the heart, the pulse being 150 and the heart sounds indistinguishable by me. The accompanying letter from Dr. Fouts of Central City covers the personal history so far as it is of bearing on this report.

"I was called to see her after her labor was well established and found her having active labor pains. I had been hurriedly summoned because of the condition of her heart. She was having one of the attacks of paroxysmal tachycardia to which she had been subject for some years, she said. Her pulse was so rapid that it could not be counted. Finding no evidence of a heart lesion, I started to make a vaginal examination, when suddenly her pains ceased. There was no hemorrhage, shock or other indications of serious trouble, so I waited 20 or 30 minutes for contractions to begin again, but was disappointed in this. Then I gave a dose of pituitrin. This produced no contractions whatever. Feeling rather anxious about her heart, I summoned Dr. J. E. Benton to assist me. He etherized her and I delivered the child with forceps. The child was dead. Upon delivery of the child, no fundus could be felt, so I introduced my gloved hand and found a large rent in the uterus, with the placenta present on edge in the rent, the body of it lying in the abdomen.

We immediately prepared to remove her to the hospital. I placed her on a stretcher, put her in a baggage car and placed her in Dr. Henry's care about 10 hours after the rupture occurred. There was no unusual hemorrhage in the meantime and no more evidence of shock than before the rupture. Dr. Henry called in Dr. Sachs for an opinion about her heart and she was placed on the operating table. At least half a dozen medical men attempted to count her pulse and their results ranged from 180 to 240. No change occurred until she reached the stage of surgical anaesthesia, when the rate fell to 120. The abdomen was opened and a rent found about six inches long, about half uterine and half vaginal, involving of course, the cervix. Blood clots were removed, the rent sutured and abdomen closed. She made an uneventful recovery. Her pulse rate suddenly shot up again some 12 to 24 hours after operation and she continued to suffer from tachycardia at intervals as long as she remained under my care."

Dr. E. C. Henry being in military service it was impossible to get a report from him but Dr. Fouts covers the conditions very completely.

I kept her under observation from July, 1918. On November first, she developed epidemic influenza and was removed to the Westfall Hospital. This ran an uneventful course and she went home November 9, 1918, still having some cough and respirations running around thirty.

On December 26th I was called about 7 A. M. and found her near the end of the first stage of labor. It had been my intention to remove her to the hospital at the onset of labor, but the hospital being so crowded with influenza patients, I did not do so, and finding her in this condition concluded that I could deliver her with forceps without undue danger. While I was getting ready for a forceps delivery she had a pain of moderate severity, the membranes ruptured, delivered a free gush of water followed by a pint or more of blood. There was an immediate change of contour of the abdomen and the child's body could be outlined lying well to the left side; the fundus of the uterus was palpable in the right flank.

I immediately moved her to the Midwest Hospital and within a short time had opened the abdomen, finding a rent in the uterus, extending from the right cornu of the uterus across the fundus and down the left side of the uterus to about one inch above the cervico-vaginal junction. The placenta had been expelled into the abdominal cavity and the child was dead. The head was impacted well into the pelvis and the uterus firmly contracted about it. There was but very little hemorrhage either externally or internally but when the head was removed from the cavity of the uterus, where it had served as a hard tampon, there was profuse bleeding from the uterine artery. This of course, was easily controlled. The uterus was removed supravaginally, the abdomen closed without drainage, this being deemed wise as there had been but two examinations and no intrauterine manipulation. There was an omental adhesion at the site of the old operative wound.

She left the hospital January 16, 1919 in good condition except that she had a slight cough and some acceleration of the respiration and the heart condition as noted before. This condition continued until February 12, 1919, by which time she had developed a very considerable dyspnoea. Examination showed complete dullness over the right chest, both anteriorly and posteriorly. On this date I aspirated the chest, removing about a quart of purulent fluid. By the next day this had apparently reaccumulated and I removed a slightly larger amount. On the sixteenth of February I introduced a small catheter through a large cannula and at this time she was again removed to the Midwest

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*Read before the Nebraska State Medical Assn., Omaha, April 25, 1922.

Hospital. Dr. Plehn made a number of X ray pictures and gave me the following report:

"February 11, 1919. Roentgenographic examination shows a complete density of the right side extending as high as the third rib behind. This undoubtedly is due to fluid. The heart is markedly displaced to the left.

February 17, 1919. Additional plate reveals a marked lessening in the density of the right side as compared with the previous plate. This is due to aspiration and the insertion of a tube, the presence of which is evident. A pneumothorax extending from the fourth rib to the tenth rib exists. The upper lobe shows considerable aeration. The middle lobe shows considerable patchy congestion with some aeration. The area of the lower lobe is still entirely dense and retracted toward the median line. The heart is still considerably displaced to the left as evidence of considerable pleural thickening.

February 20, 1919. Plate taken today shows a refilling of the pleural cavity, the pneumothorax shown on the previous plate is almost obliterated. The fluid level reaches the fifth rib behind. There is some aeration in the upper lobe which is markedly congested.

February 26, 1919. Fourth plate, after drainage and irrigation. Roentgenological examination shows fluid in the right side of the chest nearly all gone except at the angle. The upper lobe is well aerated; the lower lobe entirely collapsed. A pneumothorax extends from the seventh rib to the ninth intercostal space, involving the entire axillary area. The pleura is markedly thickened.

One drainage tube extends upward anteriorly to the sixth interspace. Another posteriorly an indeterminate distance. Irrigation tubes lie close together, all entering the chest cavity at the ninth interspace."

The drainage through the catheter proving ineffective, on February 22 I resected the eighth rib, introducing a large drainage tube and four small tubes for irrigation with Dakin's solution. On February 24, we had her propped up in bed and she improved apparently very well until the night of March 2, when she suddenly collapsed and died.

The exudate from the pleura showed an abundance of streptodiplococci. This organism was also found in her sputum. Because of the fact that I was without competent office help to carry on my work during the influenza epidemic, no furthur examination was made of the exudate. At no time during the period I had her under observation was there albumen or other abnormal condition of the urine.

The postmortem examination showed a compressed right lung, the left lung normal, a small accumulation of fluid in the left pleura, the right pleura was inflamed throughout its entire extent and was adherent throughout its upper part, the lower contained some pus. The abdominal viscera were normal in every way. At the site of operation in the pelvis, we had complete healing and a smooth peritoneal surface. The kidneys were normal with the exception of a congenital cyst in the lower pole of each, about two and one half inches long and one and one half inches in diameter. The heart was both hypertrophied and dilated, death being probably due to acute dilatation of the heart. All the valves of the heart were scarred and contracted and insufficient, covered with warts and long vegetations. From the bottom of the left ventricle a vegetation several inches long extended through the valves of the aorta. After seeing the condition of this heart it did not surprise me that no medical man had been able to make an accurate diagnosis of this condition. What did surprise me was that a heart in this condition could withstand the amount of stress to which it had been subjected during the time I had the patient under observation.

Inasmuch as some of the discussion of this paper will undoubtedly drift to the use of pituitrin it would be well to state my ideas of its use at the present time. I consider pituitrin one of the most valuable drugs at the command of the practitioner and at the same time one of the most dangerous ones.

Let us first consider that the indications for the use of pituitrin are as definite as are those for the use of forceps, and that its contraindications are even more definite. Pituitrin may be used in proper dosage with absolute safety when we are dealing with a normal and healthy muscle, but fatigued by a long and tedious labor and accompanied by a well dilated cervix with a presenting part of normal size, engaged in a normal pelvis, and no pathological obstruction to the delivery of the child, an undilated cervix, an abnormal presentation, an oversize or deformed presenting part, a uterine muscle diseased or thinned out, a deformed pelvis, a tumor or other pathological obstruction are positive contraindications to the use of pituitrin.

As to the dosage of pituitrin, when we first began the use of this drug our tendency was to give entirely too large doses. At the present time it is my practice to give from three to seven minims hypodermically and repeat as necessary.

The effect of pituitrin is transitory, reaching its climax in about twenty minutes and wearing off almost completely within an hour. It has been my observation that anaesthesia, has but little effect in reducing pains induced by pituitrin. In a large percentage of cases a lull in frequency and severity of the pains will occur after the head is well engaged in the bony strait and the membranes ruptured and the parts all freely dilated. In this class of cases it was formerly necessary to use forceps, the so called low forceps operation. By the careful administration of pituitrin in proper dosage, the woman can readily deliver herself with much less danger than by the use of forceps. In many cases also, the pains in the second stage of labor will be of nagging, inefficient type not expulsive in character. Proper dosage of pituitrin will correct this condition.

Should I have the misfortune to have another case of rupture of the uterus, I will give pituitrin in full dosage, with the hope of controlling hemorrhage until operation can be done.

Resume: Woman age 34, one normal pregnancy and delivery in 1910 and one pregnancy ending August 8, 1915, with rupture of the uterus, successfully operated upon. November 1, 1918, developed acute epidemic influenza, in hospital one week, in bed afterwards two weeks, then apparently well until December 26, 1918, when labor in her third pregnancy began and continued without incident to full dilatation of the cervix, when the membranes ruptured and the accompanying pain resulted in rupture of the uterus. Successfully operated upon within an hour, from which she made an uneventful recovery, leaving the hospital on January 16, 1919. About two weeks later developed an empyema, evidently a sequel of the influenza. Repeated aspirations and small drainage failed to relieve this condition and on February 22, 1919 a free rib resection was done. From this time on she improved rapidly, being up about the hospital ward a part of each day after February 25th until the night of March 2nd, when she developed acute dilatation of the heart and died with but a few moments warning.

CARE OF THE PERINEUM DURING LABOR, OR A PLEA FOR EPISIOTOMY.

Rudolph Rix, M. D., Omaha, Neb.

Definition

An incision with scissors or scalpel directly downward toward the anus or towards one or both lateral sulci.

Median episiotomy (Incision downwards toward the anus).

Advantages of:

Lessens the chances of cutting any blood vessels. The median raphe contains more connective tissue, therefore sutures are less likely to cut through. The raw surface is a symmetrical diamond shaped area, making it easier to coaptate parts during repair.

Disadvantages:

Lacerations are more likely, if extending, to involve the sphincter ani.

Lateral episiotomy (Incision towards lateral sulci).

Advantages:

Less likely to involve the sphincter ani.

Disadvantages:

More danger of cutting the bulbi vestibuli and producing free hemorrhage. The muscles cut, as the sphincter vagina and levator ani, do not hold sutures as well as structures in the median line.

Note: Personally, I prefer the median episiotomy.

Indications for episiotomy.

Maternal

Elicited from my own observations.

Avoids the overstretching of muscles at the pelvic outlet, without a visible tearing of the vaginal mucous membrane. This is one of the most damaging tears as it escapes notice and is not amenable to repair except by secondary operation. Avoids overstretching with tears and traumatism with edema of all tissues of the vaginal strait. A clean incised wound is more easily repaired and heals more kindly than a ragged tear such as nature makes. Less stitch infection is experienced because of miminized traumatism to soft parts. Less suffering is experienced during the puerperium from stitches. Lessens tendency to hemmorhoids following delivery. Examining all cases 8 weeks after delivery, as I aim to do, I find the uterus more frequently well involuted, therefore less prone to retrodisplacements, and less cervical pathology, such as erosions and unhealed lacerations than following the "Let Alone Plan" of caring for the perineum.

Quoting Shears Text:

Rigid perineum such as in elderly primipara. Contraction as from previous perineorraphies. Contraction of the inferior strait in contracted pelves, where the bulk of the head must be borne through the posterior sagittal diameter. Atresia of the vaginal outlet or the vulva, infantile vulva, or short perineum.

Pathological contractions from edema, hematoma or new growth.

Fetal

Large head.

Malpositions of head as occipito-posterior, face, or brow.

After coming head in breech.

Comment: In practice it is much easier to remember to do an episiotomy in all cases if there is much resistance offered by the soft parts after the presenting part has well engaged, and is putting the resisting soft parts decidedly on a stretch. This is born out by the teaching of DeLee and Cornell.

Essentials for success:

To promote asepsis

- Shave the vulva.
- Thoroughly cleanse external genitals with soap and water and 2% lysol solution.
- Sterile gloves, gown, dressings, rolls of gauze.

Instruments

Scissors, needle holder, deep lateral retractors, one dozen artery clamps, 2 Allis clamps, tissue forceps, Needles: strong with large curve about the size of half a dollar, 3 round and 3 with cutting point; also one small intestinal needle.

Suture Material

- No. 2 plain, for buried suture to coaptate levator ani.
- No. 2 chromic, for exposed sutures to close floor of vagina and external perineal surface.
- No. 1 chromic, for sphincter ani.
- No. 0 chromic, for closing rectal mucous membrane.

Other Essentials:

- Good light as from drop light or foot of table toward window.
- Exaggerated lithotomy position during repair.
- Inspection for tears and repair should be made on table.
- One assistant on each side with clean hands.
- (If skilled help is not available have two women scrub 15 minutes).

Technique:

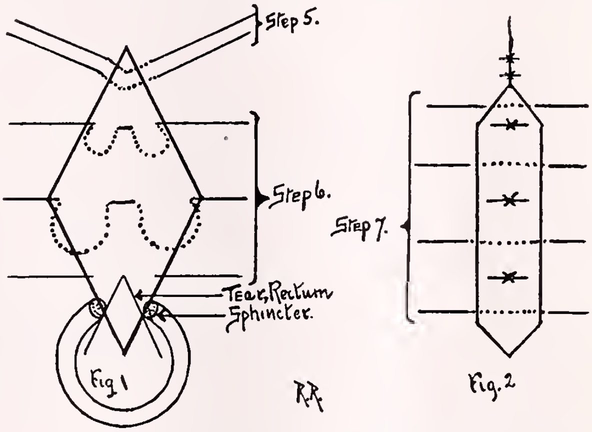
1 While presenting part of the child is putting soft parts on a stretch insert one blade of scissors in the median line between the presenting part and perineum. Cut tissues as they are in jeopardy. If a small bleeder should be cut a clamp can be applied and ligated.

2 After the delivery of the placenta, pack the vagina firmly with rolls of gauze or cotton twisted into rope.

3 Clean the external parts and place the patient in the exaggerated lithotomy position. If vaginal oozing is annoying, remove pack and introduce a clean one (To do good work the field must be kept bloodless).

4 With the aid of retractors, expose the upper angle of the episiotomy incision or tear in the floor of the vagina.

5 With needle with cutting point, armed with No. 2 chromic suture, introduce 2 or 3 sutures in the upper angle of the tear, tie, guide the last one. See Fig. 1, Step 5.



6 With large round needle, armed with No. 2 plain, introduce 3 or more buried sutures, beginning above; dipping deep into levator muscle on one side, out near the median line (where the rectum lies) then deep into opposite side.
Place a guide on each, until all buried sutures are introduced. Tie but don't put on too much tension. See Fig. 1, Step 6. (Remember these buried sutures are the most important to produce results).

7 With needle and suture material as in step 5, complete closure in vaginal floor and down over perineal surface. See Fig. 2, Step 7.

8 If the sphincter ani is torn including the rectal mucous membrane, a change of order in the repair is necessary. Then,

A—Identify the cut or torn ends of the sphincter ani and place an Allis clamp on each. Let them hang down.

B—With intestinal needle, armed with No. 0 chromic, repair the inverted V shaped rent in the rectal mucous membrane from above down. Preferably using interrupted. Tie as you go. Place knots in rectal lumen.

C—With small needle armed with No. 1 chromic, pass 2 interrupted sutures through torn ends of sphincter ani, apply guide and leave untied. Proceed with steps Nos. 5 and 6, except tie sphincter ani sutures before tying No. 2 plain of step No. 6.

D—Complete operation with step No. 7.

9 Remove vaginal pack and apply sterile pad.

Time for operation upon perineal primary tears.

AT ONCE, if the circumstances are favorable, that is, if the patient's condition is good and the environments are favorable. If, however, necessary assistance is not at hand or the attendant distrusts his ability to perform a difficult perineorraphy and supervise the anesthetic, here it is better to irrigate the vulva and apply a sterile pad. The operation can be performed as much as 12 to 36 hours later, which gives ample time to arrange for needed assistance. If this practice were generally followed, we would not so often meet with cases in which one or two hastily placed sutures at the vaginal outlet conceal a serious laceration within.

I have often been confronted with this situation, but if it is put up to the patient and friends that it requires plenty of help to do efficient work, and that thorough work will lessen the likelihood of need for an operation in the future, consent will readily be obtained.

SCLEROSING KERATITIS FOLLOWING UVEITIS.*
PRESENTATION OF CASE.

I. M. Haughey, M. D., Aurora, Neb.

History: Miss A. M., aged 36. Family history: Father living, 72, good health. Mother died at 62, from some abdominal tumor. One brother living, 41, good health. No other brothers or sisters.

Personal history: No illnesses except childhood diseases until the spring of 1915, when she began having trouble with the left eye, complaining of pain, photophobia, and conjunctival redness. She consulted an occulist who advised and fitted glasses. After a time the symptoms subsided. During a later attack he advised her that only a long continued course of internal medication would do any good.

I first saw the case early in 1916 with a recurrence of the trouble and found evidences of an old iridocyclitis. There were adhesions of the iris to the capsule, and a triangular area of deposits on Descement's membrane, covering the lower quadrant, also a few spots elsewhere over the cornea. The anterior chamber was slightly deepened and the color of the iris dulled. Under atropine the adhesions loosened. The Wassermann test proved negative.

The right eye began giving trouble in the same manner except that the process was much more rapid, of greater intensity, and the deposits on Descement's membrane scattered generally over the cornea. A cataract developed in this eye which has remained apparently unchanged since that time. Treatment consisted of instillations of atropine, hot compresses and darkened room.

At my request she consulted an oculist at Omaha, who treated her until February, 1918. The Wasserman test was again negative, as was also a tuberculin test. Radiograms of the teeth showed several root abscesses. These teeth were removed at that time or later. He advised treatment with tuberculin and the administration of large doses of sodium salicylate, which treatment was carried out at home by her family physician. He also advised the removal of the tonsils, which she declined to have done at the time, but did have them removed at a later date by her physician. The prognosis for vision was very unfavorable.

In February 1918, she visited the clinic at Rochester, where the Wassermann and tuberculin tests were again negative. The only treatment given was instillations of atropine. Soon after her return home I again saw her with a recurrence of the trouble. The punctate spots were larger and more numerous. Vision, R. E. fingers at 5 feet. L. E. 20/100.

Sclerosis began in the left eye in May, 1918. covering the lower quadrant. This process was at first a fluid accumulated beneath Bowman's membrane. In a few instances I was able to determine fluctuation, and when this was found, removed it by incision. The fluid was perfectly clear and the consistency of serum. Where the fluid was removed the resulting opacity was less and the margins indented. The right eye followed in the same manner within three months, but the process was much more rapid and there was no opportunity to liberate any of the fluid.

In 1920 the opacities cleared up somewhat at all margins which took on a bluish tint, the centers remaining white. During another recurrence they again extended to the original area.

Radiograms of the sinuses in May, 1921, showed a clouded right antrum. Transillumination of this antrum was incomplete. I opened up a large window through the inferior meatus and found a gelatinous clot of muco-pus equal in volume to about one third of the antral cavity. Nothing else was found at that time or later.

Since that time there have been three recurrences, one moderately severe and two very light. Her vision is now. R. E. 20/100 L. E. 20/32. She can read readily with her distance correction.

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*Read before the Nebraska Academy of Ophthalmology and Oto-Laryngology, Omaha, April 24, 1922.

The opacities when fully developed were pearly white, raised above the corneal level, rounded at the apex, not vascular, nor continuous with scleral tissue. At the present time there is a small central portion of the left opacity which is still white, the margins bluish. The right seems to be clearing over the entire area, more rapidly at the margins.

There is some doubt whether this is actually a case of sclerosing keratitis. The typical disease as first described by Von Graefe was an apparent encroachment of scleral tissue on corneal area, with no zone of transparent cornea between. The surface of the opaque cornea neither raised nor depressed. and usually punctuated. The opacity situated in the deeper layers of the cornea. The usual location in the inferior quadrant, though cases are mentioned in which the opacity entirely surrounded the cornea leaving only the pupillary area clear. Other cases where the opacity was separated from the corneal margin. The retrograde process beginning at the apex, very gradually clearing toward the base, which remains permanently opaque. While it may occur alone it usually follows scleritis.

In this case the opacity is immediately beneath Bowman's membrane, the sclero-corneal junction is distinct, the surface is raised above the corneal level; there are no sclerotic nodules; the opacity was at first a fluid later organizing into a dense white mass. The process of absorption was equal at all margins. They were evidently caused by the anterior uveitis. I believe the trouble originated from abscessed right upper molars, in turn causing disease of the antrum. That one or both was the cause of the uveitis. Three Wassermann tests were negative, tuberculin tests negative, treatment with tuberculin did not improve the condition. She has improved since the antrum was opened, though she has had some trouble since.

Recently I saw a case of undoubted sclerosing keratitis in a woman aged 64, suffering from arteriosclerosis, with a history of cerebral hemorrhage one year ago. The opacity in this case consisted of radial striae forming an irregular sector down and outward from the pupil. There was a distinct zone of clear cornea between the opacity and the sclera. It was not the result of inflammatory process as she had no history of any eye trouble. She first discovered the spot 15 years ago and it has undergone no change in that time, nor given her any trouble except worry over cataract which she believed it to be. The lens was clear and the vision of each eye 20/60. The opacity was in the deeper layers and the surface not raised or depressed.

The case presented may be distinguished from keratitis profunda by the location of the opacity, its outline, history of irido-cyclitis, and the length of time the opacity remains. From nodular keratitis by the restriction to a sector of the cornea, the presence of inflammatory process, the abscence of the uneven surface of the opacity, and the disposition to partially clear up.

CHART FOR RAPID ESTIMATION OF WOODYATT'S OPTIMAL DIABETIC DIET.

As an example of the use of the chart devised by Dwight O'Hara, Waltham, Mass. (Journal A. M. A., April 15, 1922), imagine a man weighing 140 pounds who, on a diet containing carbohydrate, 10 gm., protein, 140 gm., and fat, 80 gm., eliminates 10 gm. of glucose in the twenty-four hour specimen of urine. The glucose produced by the catabolism of this diet is 10 (carbohydrates) plus 81 (58 per cent. of protein) plus 8 (10 per cent. of fat), which equals 99. All of this has been utilized except the 10 gm. excreted in the urine. The man is therefore able to utilize 89 gm. of glucose, and 89 is his glucose tolerance figure. The number of calories in this diet is approximately 1,320. Forty calories are lost in the urinary glucose, however, so the man actually gets about 1,280 calories. If we want to place this man on an optimal diet which will allow 1 gm. of protein per kilogram, we find that 65 gm. of protein will supply 1 gm. per kilogram for an individual of 143 pounds (65 gm. of protein being opposite 143 pounds in the 1 gram per kilogram column of body weights at the left). The abscissa starting from 65 gm. of protein meets the ordinate starting from 89 glucose tolerance at a point in the chart. The relation of this point to the diagonal lines gives an approximate value of 40 gm. for carbohydrate and of 115 gm. for fat. On this diet, carbohydrate, 40 gm., protein, 65 gm., and fat, 115 gm., the man should be able to completely utilize his food, and should receive 1,455 calories.

"Flivverboob" is a new term coined and accepted by the American Automobile Association, descriptive of the reckless and careless driver. From the business viewpoint he is an interesting character to the medical profession.

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THE DOCTOR AND THE LAITY.

The mutual interrelations of the doctor and the people of the community among whom he lives and labors is among the strangest things in all the world. Fiction has little to compare in strangeness with the philosophy of the community-mind with reference to the medical adviser. The doctor is the only professional man in the world who devotes his energies to counteract conditions, the existence of which furnish him a livelihood; and were he given power to carry into effect the known methods of preventive medicine today, the future would know him more as a sanitarian than as a bedside practitioner. But the world was not made in a day; neither can it be reformed in a day.

With few exceptions, medical men are persons of high ideals, mindful of the high character of their missions, and of the responsibilities they incur in the discharge of momentous duties. Trained to the principle that it is the province of physicians to enlighten the public in regard to measures for the prevention of epidemic and contagious diseases, of the great wrongs often committed by charlatans and of the injury to health and sometimes even destruction of life caused by their treatment, and of the utter worthlessness and often injuriousness of most of the secret nostrums, the doctor is often appalled at the adverse attitude of the community toward doctors, their knowledge, their ideals, their treatment of the sick, their efforts to prevent the spread of epidemic and contagious diseases and their desire to keep the community from falling prey to charlatans and secret nostrum vendors. The people are very jealous of what they consider their inalienable rights. The unreasoning fanatical opposition to anything in the nature of public health control has grown tremendiously of recent years, more in some sections than in others, as is well evidenced in the failure of the various efforts made in the past to enact national public health control.

All are informed of the results of the efforts of many highminded people to have enacted welfare legislation during the session of the last legislature in this state. Of twenty-nine bills introduced, less than a dozen were enacted into laws, but "unchristian non-science" was given a free pass to glory and the pocketbooks of the unwary. To a large class of otherwise reasonable people, the hysterical vagaries of a New England woman appeal more strongly than the best thought of a thousand scientific workers for a thousand years; while to another class the unprovable theory of tissue dislocations and the restoration by manipulation, appeals with equal force.

A notorious charlatan may come to your community, following several weeks of publicity in the local press, the phraseology of which is so glowing with promise to cure as to hypnotize the unwary. He can cure everything from ingrowing to-nail to hydrophobia. Your better sense revolts at the promises so blatantly heralded in the press. You wonder whether anybody in your community is fool enough to take the bait. You are astonished when the day and date arries to see the people, some of them your better customers, file into the office of the charlatan-specialist. You credited them with the possession of better sense—you thought they knew better. Perhaps they do; but the mysterious appeals to them and they like to be humbugged. They really seem to enjoy it, for when next year another pretender comes along, he will get his quota of patients, and some of them will be the same ones who were duped last year. To the laity there is something very mysterious about medicine. They believe there is a medicine for every symptom and a remedy for every disease, and woe unto the doctor who cannot produce the remedy. The specifics of half a century ago numbered from one to six and so on ad infinitum, were intended to fill this want, as were also the proverbial two glasses of water with infinitessimal doses of medicine. Teaspoonful doses alternately looks hopeful to the patient to say the least, as some one has said.

The sure cure and specifics of the patent medicine business have a hold on the community no amount of publicity or of educational campaigning will ever overcome. Self-doctoring is enticing to all. Here is a sure cure for rheumatism. It is guaranteed. Sample package sent free, gratis, for nothing—think of that! No cure, no pay. Your money back if not benefitted. What inducement could be more liberal than that? It matters not that the medical profession of the entire world has been unable to produce a specific for rheumatism during all the ages. It matters not that you have vainly endeavored to explain that if there were such a specific the entire medical world would know it.

The writer has little confidence in our ability to educate the present generation out of this quagmire of ignorance. The superstitions of the ages are too deeply engrafted in their minds. They do not want to be educated. They cannot interpret rightly the unselfish devotion of the medical profession to the cause of light and right.

DR. ALEXANDER R. CRAIG PASSES.

Dr. Alexander R. Craig, Secretary of the American Medical Association since 1911, died September 2, of uremic poisoning while visiting the family home at Port Deposit, Maryland. He was a graduate of the University of Pennsylvania, 1893. He had been resident physician of the Polyclinic hospital, Philadelphia, and had engaged in private practice in Columbia, Pa., and in Philadelphia. He was a member of the House of Delegates from Pennsylvania up to the time he was elected Secretary at the Los Angeles meeting in 1911. He was an active and enthusiastic worker in medical organization work and was a very likable character whose memory will ever be cherished by those who knew him.

WHATSOEVER YE SOW THAT SHALL YE ALSO REAP.

Some of my medical friends are dissatisfied with their lot in life. Whether they are justified in their contention I cannot say; but I have a suggestion to offer: Get out of the medical profession and into something more congenial. I know of nothing more deplorable than an individual forced to carry on a given line of work that is distasteful to him. The practice of medicine above all other callings warrants an intense interest in our efforts, that we may get the best possible results. To my way of thinking, life is as you like it. If we put kindness, consideration, determination and sincerety of purpose into it, that is what we get out of it. If we are narrow, suspicious, intolerant and insincere, we get that in return. "Whatsoever ye sow that shall ye also reap," is a truth that cannot be gainsaid. Unfavorable legislation, inadequate fees, unjust criticism, dissatisfaction with our surroundings can all be overcome with the proper effort. Some who live in the country want to go to the city, while some who are in the city would like to go to the country. It depends upon the individual largely, for what one gains in one place, he loses in the other. When those of us who live in the small towns consider that the personal interest between the patient and his physician is so much more marked than that of those living in the city, I think we should be grateful. I know physicians who have so endeared themselves to the people of the community that they are consulted upon any and all subjects that come up. "What calling shall John or Mary take up?" "Is Clara old enough to take music lessons?" "Would you sell the cattle now or feed them another thirty or sixty days?" When people have such confidence in their physician, it is truly worth while. Being in the public eye as much as we are it is not to be wondered at that we are subject to so much criticism; it cannot be avoided. Constructive and kindly criticism we should invite and the unkind and destructive type we need not fear. Let us put forth our very best effort and when we know we have done the right thing, we will be satisfied I am sure. It is a wonderful thing to be able to get contentment out of our station in life by being willing to give much and to receive little. When we sympathize with ourselves and feel we are unjustly rewarded, let us look into our own shortcomings and it may show a different perspective.

—Morris Nielsen.

A PLEA FOR THE SMALL TOWN DOCTOR'S IDEAS.

The opportunity afforded itself to me today to peruse an article in a monthly lay periodical which gave food for thought.

The article outlined in a general way the lack of incentive for individual effort in the average college graduate, pointing out in particular the great tendency to submerge themselves in their work in favor of the few to the detriment of the profession as a whole. Analyzing this thought brought to mind the paucity of articles in our medical magazines by the general run of practitioners, for in looking over our monthly magazine, invariably we find the usual big city contributors of articles with occasionally an outsider. It is consistent with good reasoning to feel that some of the practitioners in the smaller towns have, undoubtedly, some good, original and progressive medical ideas, lying dormant, gained in their clinical experience which needs only a breath of encouragement to bring to activity, and which if methodically catered to and properly corralled in our magazines, would materially assist in our search for knowledge.

My proposal, the inaugaration of a system of collective thought by obtaining, either by assignment or personal solicitation, an original article or a constructive criticism of an article from the small town physician. This would, I am prone to believe, have a tendency to advance the science of medicine and inevitably inculcate a more neighborly spirit among the profession.

—John V. Reilly

OUR DUTY TO THE PUBLIC.

I believe that Dr. Fouts in the June issue of The Journal has touched upon a duty and an obligation of the medical profession, which is one of the greatest that it has. I might state it as consisting of the provision for the people of the best possible service that modern science has developed, when they are sick or in danger of becoming so. As human health is not to be trifled with, this would involve the protection of the people from the operations of those unqualified to understand or deal with it.

I think we shall be more successful in our efforts to fulfill this duty, if we put a little different interpretation on what Dr. Fouts terms the "ingratitude" of the public. If we realize that we ourselves are responsible for that attitude, we can do much more to correct it, than if we blindly blame it on the public.

In the past, we have as a medical profession, seen the public "bamboozled" by all sorts of incapable medical cults, with disastrous results to itself; and we have sat quietly and said little and done nothing. Our attitude of ethical lassitude is all wrong. "You can't fool all the people all the time," we said; "the public will soon find the quacks out, and their day will come." We have leaned back in satisfaction in our own rightenousness; and as a result. the public has found **us** out. The public has expected us to be its careful advisor and firm guide; but it has found us silent and passive while it took its mistaken steps. Perhaps it does not understand our motives or our restrictions; but it has put a correct valuation on our works and our results.

The public does not reason consciously, nor clearly and quickly; but it gets there. It sees that we have attained knowledge and kept it to ourselves like monks. Only a few individuals among us have labored to make the public understand, in an age and nation where individual effort is like a drop of water in the ocean; at a time when nothing can be accomplished of value without thorough and wide-spread organization, without the utmost system, and without militant methods, by the profession as a whole.

Medical literature and conversation is full of the condemnation of the methods of chiropractors and various quacks. Every day brings a fresh example of the damage they are doing in the community. Everyone who understands is indignant against the men who perpetrate these things; but seldom does it seem to occur to anyone that the harm and suffering thus caused is scarcely more the fault of the ignorant quack than of the ignorant patient. The real responsibility lies with the medical profession. The Pott's disease that was rushed to a speedy and entirely avoidable paralysis by chiropractic treatments, the diabetes that quickly died in coma under "adjustments," the infected finger that went into general septicemia under Christian Science — you and I have seen many examples — these are on the conscience of the medical profession.

The public is not a fool. It does not lack intelligence; it merely lacks facts and training. The most intelligent man is not in a position to form a correct opinion unless he is in possession of the proper objective information upon which to base it. Suppose you and I had not studied the facts of anatomy and physiology; we should consider the chiropractic "theory" as very wonderful and logical. I cannot blame the public for believing these things. I cannot blame it for grasping at the positive assurances of cure, when we give them so little hope. The public acts only as it understands; and who will teach it to understand if we who know, have failed?

The state does not leave the public at the mercy of every stock-selling crook, and say that it serves you right for being such a fool. Is an elaborate system of protecting the bodies of the people from irresponsible grafters less important than one to protect their pocketbooks? Not even the public believes that. It merely does not realize the situation. You will laugh and feel very cheerful sitting on a box of dynamite, if you do not know what is in the box. How or where can the public learn the truth, unless we as a medical profession teach it?

We have assumed responsibility for the health of the public. We have done so in our own minds, but are not living up to it. We tell ourselves and would have others believe that we are not in business for the purpose of making money, but to serve the highest good of the people. The public is finding it difficult to reconcile the following two facts: 1. We **know** that these quacks are dangerous and ignorant, and so forth; and yet we sit back and do nothing to warn or protect the people upon whom they prey; and 2. We claim to be devoted, not to profit, but to the highest good of the people.

Perhaps it is for this reason that we no longer enjoy the prestige and confidence that physicians had a couple of generations ago. The public today regards the physician as a tradesman, just as much as any of the other tradesmen, and it shops from office to offices, just as it does when it buys neckties.

The correction of this condition must come from the inside. It cannot and will not come through any other influence than our own. As individuals we can do little. For one thing, it is too big a task. For another, individual efforts are usually construed as an effort to gain publicity for personal reasons, and lose their effect. The best you and I can do as individuals, is to look to our own capabilities, and see to it that our own training and knowledge is up to standard. (For there is no lack of quackery and ignorance and incapability among those with M. D. degrees). The foundation of this effort must consist of clear conscience and honest effort on the part of every individual.

It is only organized effort on our part that will fulfill our highest duty to the civilization that taught us. Organized effort is necessary to show the public what we know and what we stand for, and to win back the respect that once was ours. The time has arrived to fight the enemies of human health with reason and education, and not merely with pills and charms.

—Miles J. Breuer

EDITORIAL PARAGRAPHS.

Have you ordered an oscilloclast yet? 'Twere better to order early and avoid the rush.

A survey made by the Medical Review of Reviews among prominent physicians, health officers, etc., on the question whether a light or substantial breakfast is the healthiest regime for those engaged in sedentary occupations resulted in 73% favoring the substantial breakfast, 13% opposed to the heavy breakfast and 14% noncommittal. Since your editor's opinion was not solicited, he feels somewhat peeved; but for the sake of history, he wants to go on record as favoring fruit, bacon and eggs, toast and coffee.

From another state recently came the story of a little boy who accidentally inspired a part of a roasted peanut. Noted specialists were called who performed three bronchoscopy operations on the child in a vain endeavor to get the offending fraction of the peanut. This reminds the editor of a bit of ancient history. Fifteen months old baby, Mary, got a half of a roasted coffee bean into the right bronchus and suffered greatly in breathing. In the absence of modern instruments and dearth of specialists, what was a pioneer country doctor to do? He gave Mary enough paregoric to keep her pretty well narcotized continuously and also gave a little syrup of ipecac to stimulate the secretions. In twelve days Mary coughed up the coffee bean. Now then, as between paregoric and the bronchoscope————.

AN APOLOGY AND AN EXPLANATION.

The editor regrets very much that through one of those unaccountable lapses that occur in individuals, the five cuts that should have been part of the article, "The Diagnosis and Treatment of Pyelitis" in the September number, were omitted.

NEW ADVERTISERS.

The attention of our readers is called to the new advertisers in the Journal: Stewart Motor Co., agents for the Hupmobile; E. H. Rollins & Sons, investments; The Calco Chemical Co., manufacturers of Salicaine; Western X Ray Co.; Dr. E. S. Harris, offering a course in refraction to doctors, and the Medical Research Laboratory.

FROM AN APPRECIATIVE PATIENT TO THE EDITOR.

In our town
There is a man
Who never tarries here.
He breezes in
Then breezes out
And makes two dollars clear.
His hair is white
From such a fright
His patients give him, when
They 'phone for him at 1 A. M.
Instead of half past ten.
He sees all things
He thinks all things
And never does things wrong.
So here's to him
This fine big man
Our own good Doctor Long.

THE GORGAS MEMORIAL FUND.

At the St. Louis Annual Session the Board of Trustees reported to the House of Delegates that in response to a request received from the directors of the Gorgas Memorial Institute of Tropical and Preventive Medicine for the cooperation of the American Medical Association, the Board had taken action which resulted in the appointment of a committee, representing the American Medical Association, to act on the project. The following were appointed: Dr. George E. de Schweinitz, Philadelphia; Dr. Charles W. Richardson, Washington, D. C., and Dr. Fred B. Lund, Boston.

The House of Delegates unqualifiedly endorsed the Gorgas Memorial as a tribute to a past President of the organization and one of its most distinguished and loved members. At its recent meeting the Executive Committee of the Board of Trustees received the following statement from the committee and directed its publication.

Statement and Appeal for Cooperation.

As a result of the stimulating suggestion of President Porras of Panama, it has been resolved that a fitting memorial shall mark the humanitarian service of the late Major General William C. Gorgas, and the beneficent influence of his life and work on mankind throughout the world. Following the thought of President Porras, it has further been decided that this memorial shall take the form of a scientific institute for the study of tropical diseases and of preventive medicine.

No better place could have been selected than Panama City, the gateway between the Atlantic and the Pacific, where General Gorgas' well-planned and executed work made possible the building of the Panama Canal.

It is hardly necessary to call the attention of the medical profession to the far-reaching effects of General Gorgas' work on the welfare of the people of the whole world, especially in tropical and semitropical climates, and in all places subject to the inroads of infectious disease.

We of the medical profession remember him as our Surgeon General during the early part of the World War. We remember his prompt recognition of the necessity of bringing into active service large numbers of physicians and surgeons from civilian life. We remember his genial and kindly nature, his high character, and his steadfast effort directed toward the organization and equipment of the Medical Corps of the Army. We remember the patriotic response. We remember him as a great sanitary officer, to whom we wish to pay a lasting tribute.

A central committee has been formed, with Admiral Braisted, retired, ex-President of the American Medical Association, as its president. The American Medical Association has appointed a committee of three to work in accord with the central committee, and through its members this appeal is made to the American medical profession.

The plan is to build at Panama an institute for the study of tropical and infectious diseases, with a hospital, laboratories, departments for research and all other facilities required in an institute of this character, erected and administered according to the most progressive, modern ideals. The Panamanian government, owing to the far-sighted, philanthropic vision of President Porras, has donated the great Santo Tomas Hospital, and also the ground on which it is proposed immediately to construct the buildings as they have been described. Dr. Strong has been appointed the scientific director.

In conjunction with this work in Panama, there will be established in Tuscaloosa, Ala., the Gorgas School of Sanitation for the purpose of training country health workers, sanitary engineers and public health nurses, especially educated to deal with the problems peculiar to the Southern states.

An endowment of six and one-half million dollars will be required to enable the institute to carry on the work according to the plans which have been formed.

The Republic of Panama has demonstrated its sympathetic and practical interest in this enterprise with splendid liberality. The physicians of our country, and especially the members of the American Medical Association, surely will not disregard the memory of a former President, and will seize the opportunity to make in this respect a contribution of which they will be proud.

The campaign for funds is to be international. A large response is expected from North, Central and South America, since the nations of these countries have been the chief beneficiaries of the labors of General Gorgas. It is fitting that his co-workers of the American medical profession should be requested to respond generously to this appeal. It is hoped that every member of the American Medical Association will make as liberal a subscription as possible. Any sum will be gratefully received. Checks should be drawn to the order of the "Gorgas Fund" and should be mailed to the American Medical Association, 535 North Dearborn Street, Chicago.

Charles W. Richardson, Washington, D. C.
F. B. Lund, Boston,
G. E. de Schweinitz, Philadelphia.

THE SOCIETIES.

The **Joint Meeting of the Elkhorn Valley and Fourth Councilor District Medical Societies** will be held at Norfolk, October 3, 10 A. M. The program follows:

(1) Fractures and Complications of Fractures—Dr. C. D. Evans, Columbus. Discussion by Dr. Harry Morris, Newman Grove.

(2) Factors Influencing the Safety of Ether Anaesthesia—Dr. R. M. Waters, Sioux City. Discussion by Dr. W. R. Peters, Stanton.

(3) The Relatives of the Doctor — Dr. Lucien Stark, Hartington. Discussion by Dr. Morris Nielsen, Blair.

(4) Separation of the Lower Femoral Epiphysis—Dr. Jno. Buis, Pender. Discussion by Dr. R. D. Schrock, Omaha.

(5) Focal Infection—Dr. A. D. Dunn, Omaha. Discussion by Dr. E. L. Brush, Norfolk.

(6) Pulmonary Tuberculosis with Especial Reference to its association with Focal Infection in the Nose and Throat—Dr. Geo. W. Covey, Lincoln. Discussion by Dr. L. J. Kilian, Wakefield.

(7) The Relief of Procidenti Uteri in the Elderly—Dr. A. C. Barry, Norfolk. Discussion by Dr. A. D. Munger, Lincoln.

The annual assembly of the **Tri-State District Medical Association** will be held at Peoria, Ill., October 30, 31 and November 1 and 2. Thirty of the most eminent men of the profession in the United States will take part in the proceedings.

Before the **Box Butte Medical Society** at St. Josephs' Hospital, Alliance, Sept. 7, Dr. F. E. Clough, of Lead, S. D., read a paper on "Fractures of the Elbow." Dr. Clough is chief surgeon of the Homestake mine and talked from a wealth of practical experience gained in his work.

The **Madison County Medical Society** met at Norfolk, Sept. 12, over a dinner served sharply at 6:30 to 16 doctors. The following program was heard: The Measurement of Basal Metabolism—Dr. D. C. Sigworth; Discussion opened by Dr. F. X. Rudloff.

Ocular Manifestations in constitutional diseases—Dr. L. L. Nelson; Discussion opened by Dr. A. N. Howley.

The regular monthly meeting of **Saline County Medical Society** was held at Friend Tuesday, September 12th, at Swanson's Cafe, at 7:30 p. m. Dinner at 8:00 p. m.

Dr. H. P. Wekesser, of Lincoln, was the guest of honor, and gave a paper on "Caesarean Section."

Dr. V. V. Smyrha read a paper on "Ileus," and Dr. H. J. Wertman on "Nitrous Oxide Gas Anaesthesia in Labor."

On Saturday evening, Oct. 7, 1922, the regular bi-monthly meetings of **The Lancaster Medical Society** will begin. These meetings will be held on the first and third Saturdays of each month, and all medical men are cordially invited to be present and take part in the meetings.

HOSPITAL NOTES.

The Falls City hospital, closed since last fall, has been reopened as a semi-community institution. A welfare board will pass on a certain class of cases.

A crisis has come in the affairs of the Valentine hospital and unless the various civic and religious organizations pool their endeavors and take it over, the hospital will be closed.

The Seward hospital, the creation of Dr. H. B. Cummins, has been reorganized by the following physicians and surgeons taking interest in the institution: Drs. William Sandusky, L. H. Lee, J. F. Atha, O. C. Nickum, H. B. Cummins, Seward; Dr. J. E. Meisenbach, Staplehurst; Dr. C. E. Protzman, Garland; Dr. Fred Coleman, Ulysses; Dr. Lee Rose, Utica.

Tangible plans for raising the funds for a hospital at Holdrege have been developed. The Commercial club has decided to raise $30,000 with the understanding that the Lutheran church shall raise a like amount, and take charge of the hospital.

NOTES ABOUT THE DOCTOR.

Dr. W. E. Kelley, formerly of Belvidere, has located at Pierce.

Dr. D. T. Martyn, Jr., Columbus, recently suffered the loss of his wife.

Dr. A. E. Mack, well known Omaha specialist, has moved to California.

Dr. A. F. Johnson, for thirteen years located at Gresham, has moved to Osceola.

Your secretary-treasurer, Dr. R. D. Adams, spent his vacation on the Minnesota lakes.

Dr. E. M. Tyler, Auburn, took a post graduate course in New York during the summer.

Dr. and Mrs. H. Melerian, Plainview, spent a month during the summer at Lake Madison, S. D.

Dr. F. H. Nye and wife, Plainview, spent a month in Colorado during the latter part of August and early September.

Dr. E. C. Lynch has been added to the medical faculty of North Platte. He will do eye, ear, nose and throat work.

Dr. Thos. H. Long, wife and daughter, Ashford, Washington, visited at Madison, West Point and Omaha, during September.

Dr. W. S. Franklin, Bayard, has been reported seriously ill from an infection of the right hand acquired during an operation.

It is announced that our good friend Dr. Albert F. Tyler, Omaha, is preparing to publish a book on the Principles and Practice of Radiant Energy Therapy.

Dr. H. W. Parchen, until recently a physician at Winner, S. D., has located at Winnetoon. He was formerly a practitioner in different places in north Nebraska.

Dr. J. I. Linburg, for some time a practitioner at Walthill, has located at Spencer and is understood to have purchased Dr. Skelton's interest in the Spencer hospital.

Dr. C. L. Hooper has located at Broadwater. He was a physician at North Platte, before going into the army medical corps and has also practiced at Orleans and Lewellen.

Friends of Dr. W. B. Kern, Los Angeles, formerly superintendent of the Ingleside State Hospital, Hastings, will be interested to learn that the doctor had as his summer vacation, a trip to Honolulu.

Dr. Ida Scudder of Velore, India, addressed the doctors of Lincoln on September 13th. Dr. Scudder is at the head of The Woman's Medical College at Velore, and has spent twenty-seven years in India engaged in this work. She represents the oriental colleges for women, of which there are seven; two of these being medical colleges. She is in this country to help raise money to carry on their building programme.

NECROLOGICAL.

Dr. G. W. Ira, Lynch, St. Louis College of Physicians and Surgeons, 1888, August 26, died after an illness of several weeks. Dr. Ira had practiced at Lynch for two score years and at one time was in the Indian Service at the Santee reservation.

Dr. William J. Stephenson, Decateur, Medical College of Indiana, 1886, died about the first of September of apoplexy.

BOOKS RECEIVED.

Diseases of The Skin. By Henry H. Hazen, A. B., M. D. Cloth. Price $7.50. Pp. 608, with 241 illustrations. Second Edition. St. Louis: C. V. Mosby Co. 1922.

Principles and Practice of X ray Technic. By John A. Metzger, M. D. Cloth. Price $2.75. Pp. 144 with 61 illustrations. St. Louis: C. V. Mosby Co. 1922.

Diseases of The Thyroid Gland. By Arthur E. Hertzler. M. D., F. A. C. S. Cloth. Price $5.00. Pp. 245 with 106 illustrations. With a chapter on Hospital Management of Goiter Patients by Victor E. Chesky, A. B., M. D. St. Louis: C. V. Mosby Co. 1922.

The Practical Medicine Series. Vol. 1. General Medicine. Edited by Geo. H. Weaver, M. D., Lawrason Brown, M. D., Robt. B. Preble, A. M., M. D., Bertram W. Sippy, M. D., Ralph C. Brown., B. S., M. D. Cloth. Price $3.00. Pages 715, with illustrations. Series 1922. Chicago: The Year Book Publishers, 304 So. Dearborn St.

FREQUENCY AND CLINICAL SIGNIFICANCE OF DISPLACEMENTS OF THE UTERUS.

An uncomplicated retrodisplacement of the uterus in the opinion of Palmer Findley, Omaha, (Journal A. M. A., Sept. 2, 1922), is of no clinical significance save that of a preliminary step in the development of prolapsus. This statement should be qualified in reference to sterility, which for mechanical reasons is influenced to a limited degree. With the possible exception of sterility, pelvic symptoms are chargeable to associated lesions within the pelvis and to more remote factors. Pelvic complaints are engendered by suggestion, and as a result of suggestion the displaced uterus becomes a pain-pathway for neurosis in a woman who has acquired nervous instability from overstress. Among 480 retrovisions and retroflexions, only twenty (4 percent.) were uncomplicated. The pelvic complications comprised the whole category of pelvic lesions. The indications for operative intervention rested in the associated pelvic lesions and not in the displacement of the uterus. It was not always possible to account for backache, and the correction of the displacement, together with the removal of accompanying pelvic lesions, did not always relieve the backache. Failing to find a satisfactory explanation within the pelvis for backache, rather than accept an uncomplicated retroversion or retroflexion as the casual factor, Findley has looked to faulty posture, the tilted pelvis from fatigue attitude, faulty foot mechanisms, sacro-iliac relaxation and focal infection. The popular idea that uncomplicated retrodisplacements of the uterus result in congestion of the uterus, which, in turn, causes such disturbances as leukorrhea, dysmenorrhea and menorrhagia, is not justified in fact. These symptoms are more satisfactorily accounted for by the presence of morbid changes in the uterus and adnexa. Pressure symptoms referred to the bladder, rectum and pelvic nerves are to be ascribed to the presence of gross pelvic lesions and not to the displaced uterus. Prolapsus is the end-stage of retroversion. Procidentia in nulliparous women is rare and is due to defective innervation coupled with the effects of intra-abdominal pressure.

TREATMENT OF PRURITUS ANI.

Pennington states (American Journal of Clinical Medicine,) that when there are few or no objective symptoms, he finds that painting the region with a 2- to 5-per cent. solution of chrysarobin in traumaticin, once in three to five days, and applying the ointment given in the next paragraph, night and morning during the interim, is one of the best modes of treatment. The application sometimes gives rise to considerable pain for a few moments, especially if there are cracks and abrasions; but this soon subsides. When the surface is dry, after application, he takes a thin layer of cotton ,sprinkles it with talcum or some other powder, and places it over the field to prevent staining of the underclothing.

The formula referred to just above is as follows:

Menthol, 3 to 4 grs.
Phenol, 8 to 12 mins.
Zinc oxide ointment.
Vaseline or tallow, aa 2 drs.

M. et ft. unguentum. Sig.: Apply locally night and morning after cleansing the part with warm water and drying.

CANCER NUMBER

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CARCINOMA OF THE STOMACH.*

Byron B. Davis, A. B., M. D., F. A. C. S., Omaha, Neb.

Ninety thousand persons die annually in the United States from cancer. According to the best information obtainable 38 per cent of these deaths result from cancer of the stomach. That is, to say, 34,200 deaths occur in the United States annually from cancer of the stomach. A disease with such numerous victims is deserving of careful study with the hope that a clearer understanding of the early symptoms will make it possible to save some of these lives.

The age when most cases of gastric cancer develop is between 40 and 70 years. It occurs in men three times as frequently as in women.

One cannot exactly say that any one class is more susceptible than another. Those who partake more largely and more constantly of the heavier articles of diet are supposed to furnish a larger proportion of the victims. Prosperous, well fed people, who do not labor much, doubtless are somewhat more prone to the disease than the more sparing eaters who lead an active life. Farmers seem to be frequent victims. The farmer works very hard and is constantly in the open air eight or nine months of the year. Most of them during this time eat very heartily, but are able to take good care of these heavy meals because of their hard, out of door labor. During the winter many farmers have very little work to do and sit around the house a greater part of the day. During this time their appetites remain, the heavy meals during the active part of the year have increased the size and the demands of their stomachs, and they continue to eat enormous meals during this semi-hibernating period. This would seem a partial explanation of the prevalence of cancer of the stomach among farmers.

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*Read before the Seventh Councilor District Meeting, Geneva, Neb., Oct. 20, 1921.

If we analyze our cases it will be found that they fall into two fairly well defined groups. Group 1 is made up of those who have never been troubled with stomach malfunction. The first indication that all is not well with them is when the first symptoms of gastric cancer appear. Group 2 is made up of those who have had chronic or periodic dyspepsia for many years and a goodly proportion of them have been treated for gastric ulcer. In studying the symptoms of stomach cancer it will be well to consider these two groups separately, for the disease manifests itself very differently according to whether it belongs in Group 1 or Group 2.

GROUP 1.

This is the group that prior to the onset of malignant disease had enjoyed perfect gastric health. The earliest symptom consists of a dyspepsia in an individual, generally past 40 years of age to whom such gastric disturbance is foreign. The especial characteristic of this malfunction is that it is continuous. One of the first manifestations that all is not right is an uncomfortable feeling with eructation of gas of a disagreeable taste and odor. The stomach feels distended as if the patient had eaten too much.

Loss of appetite follows very soon, and it is usually an absolute anorexia, there being a real aversion to food and especially to certain kinds of food, notably meats. This differs markedly from the loss of appetite in ulcer. Ulcer patients are usually hungry and the only reason they do not eat freely is that they have learned that pain follows a full meal and they abstain, to avoid the penalty.

There is a steady and progressive loss of weight. It is well to weigh persons, suspected of having cancer, regularly, every three or four days, using the same scales every time and seeing that their clothing is the same. No matter what the treatment when a person has cancer of the stomach a gain in weight almost never occurs. By diet it is sometimes possible to stop the weight loss temporarily but never for long. In benign ulcer appropriate treatment will usually be followed soon by a gain in weight.

What has been said about loss of weight applies also to anaemia. The anaemia of cancer of the stomach is progressively downward. No food, no treatment, nothing we can do is likely to improve the anaemia and in spite of all efforts to build up, one can depend on the red count becoming steadily lower. In ulcer there is usually some anaemia but the regular treatment soon pushes the red count upward. In cancer the red count never goes as low as in pernicious anaemia, rarely falling below 3,000,000, and the hemoglobin is seldom below 75 per cent.

The leucocyte count in cancer is almost always higher than normal, and the polymorphonuclears are increased at the expense of the lymphocytes. Normally there is a hyperleucocytosis during digestion; in cancer of the stomach this does not occur.

Vomiting is not a constant factor. In early cases nausea is often present with slight regurgitation of foul fluids. Often vomiting does not occur till late, especially if the disease is located at a distance from the pylorus. When there is pyloric obstruction the vomiting is likely to be more frequent soon after the obstruction begins and to become less frequent and more copious after the stomach has become dilated. At this period practically all the food taken for one or two days is vomited at once. Occasionally, even early in the disease, a little dark blood comes up with the vomitus. The so-called "coffee ground" vomit is an indication the disease is well advanced.

In the early stages of gastric cancer pain is not usually very severe. It is at first more of the nature of a vague discomfort, a full, tight feeling, a sense of constriction in the chest with a sense of fullness of the stomach. The less food ingested, the less discomfort is experienced. In the later stages more of these cases experience real pain, and it sometimes becomes a heavy burden and the chief complaint. It is usually situated in the gastric region, along the arch of the ribs and in the back.

Hemorrhage, in the form of hematemesis is rare. A small amount of hemorrhage is one of the most constant phenomena. Occult blood in the gastric contents and in the stools is almost constant in the majority of cases. Some go so far as to assert that when occult blood is absent from the stools it is evidence that cancer of the stomach does not exist. While it is usually present, in many early cases and occasionally in later cases it is absent. Its presence shows that sloughing is taking place and after the tissues begin to slough in gastric cancer, the sloughing is likely to be continuous and in these cases blood, either apparent or occult, is constantly present in the gastric contents and in the stools.

Physical weakness begins early. It is due to inability to take food and to digest it when taken. The toxaemia of cancer, whatever it is, is also a potent factor in weakening the patient. This weakness is subjective and also objective and can be demonstrated by the flabby abdominal muscles and soft muscles of the extremities.

The cachexia of cancer comes comparatively early in many cases but not as a rule until many pounds of weight have been lost and the emaciation has become pronounced. At first the faint lemon yellowish tint, which becomes darker as the disease progresses, makes a picture which enables a good observer to make a diagnosis of cancer without asking a question or learning a single symptom. The pallor of the anaemia plus the cancer toxaemia is supposed to be the cause of the characteristic color to which we give the name cachexia.

GROUP 2.

This group, far more numerous than Group 1, consists of cases that follow years of "dyspepsia" accompanied or not with the diagnosis of peptic ulcer. Only the variations of symptoms from those of Group 1 will be considered.

The first real evidence of cancer in this group occurs when the attacks of periodic malfunction of the stomach with more or less prompt relief with or without treatment culminate in an attack that is not relieved by treatment. The symptoms at the beginning of the attack are much the same as in the numerous attacks that have preceded it. Now, the treatment that has been effective before fails to give relief. The symptoms grow progressively worse. The loss of appetite is extreme, the loss of weight continues in spite of diet and treatment. The anaemia is persistent, soon the absence of hyperleucocytosis during digestion may be detected. The gastric contents and stools contain blood more constantly, the downward trend cannot be stopped.

In Group 2 the loss of appetite is not quite so prompt nor quite so absolute at first as in Group 1. The anaemia is a little slower in coming on. The loss of weight may not be quite so rapid. On the other hand the pain is earlier and more severe, and hemorrhage usually begins earlier. The length of life after the disease is manifest is slightly longer in Group 2 than in Group 1.

When a case complaining of gastric symptoms presents himself for medical advice, especially if the patient is past thirty five, the possibility of cancer of the stomach should be always in one's mind. A good detailed history is of the greatest value in directing one's mind along the proper channel. If there is no antecedent history of stomach disease and the symptoms have developed insidiously and it is very difficult for the patient to fix on any date or any event by which to base his opinion of the beginning of his trouble he may belong to Group 1. If the case gives a history of long continued gastric trouble, especially if the attacks have been periodic, and of the ulcer type, and have usually yielded promptly to appropriate treatment, and the present attack has been obstinate and has not responded to treatment, the suspicion is that we have a case that will fall into Group 2.

When it comes to making an early diagnosis of gastric carcinoma it is realized the difficulties are great. If one is content to wait until a positive diagnosis can be made, the chance to do a successful operation is usually lost. Before real progress can be made in our strife with this dread malady we shall be compelled to do our operation because of a strong probability, without the comfort of a positive diagnosis. I wish to quote from Smithies and Ochsner: "Mortality in gastric cancer can only be successfully attacked by a greater number of obstinate peptic ulcer cases being treated surgically than is at present the vogue. The physician's waiting until the so called clinical picture of gastric cancer appears is practically equivalent to signing the patient's death certificate."

What aids have we in reaching a conclusion that the probabilities of gastric cancer are strong enough to warrant an operation? Unfortunately there is no laboratory test that is conclusive until very late in the disease. Each test should be considered only an aid and it is the finding of a number of clinical signs and laboratory aids that substantially agree, each being suggestive of early cancer that should help us to reach a conclusion.

CHEMICAL ANALYSIS OF GASTRIC CONTENTS.

Late in the disease, too late for successful operation, when we find entire absence of hydrochloric acid and presence of lactic acid we have a test that is fairly conclusive. But when we get the case early at a time before the pathology has become extensive, and when an operation offers a splendid chance for permanent relief, the chemical tests will be found to be less positive. In Group 1 the hydrochloric acid is absent or lower than normal at a rather early stage of the disease. In this group the chemical analysis is likely to give positive results early enough to be of considerable value before the case has ceased to be operable. In Group 2 hydrochloric acid is likely to remain high or normal or slightly subnormal for a considerable period, and by the time it is found absent or so low as to be significant, the stage of operability is frequently past. The same may be said of the presence of lactic acid. It is found earlier in Group 1 and so late in Group 2 that its value is questionable. Smithies and Ochsner state that in 95 per cent of the cases in which lactic acid was found the cases were inoperable.

ROENTGENOGRAPHY.

The X ray intelligently used and skillfully interpreted is of much value, but even this aid, if unsupported by clinical evidence, frequently may lead one far astray. A filling defect, properly interpreted, which is found constantly, seems fairly conclusive; but even here seemingly ridiculous errors may be made. In every case of gastric malfunction whether it points towards cancer or not, I believe the X ray should be made use of, but I strongly protest against drawing definite conclusions from the X ray alone, unless there are other evidences of a confirmatory nature.

OCCULT BLOOD.

In every case of serious trouble with the stomach there should be made a routine search for occult blood in the gastric contents and in the stools. Not one or two perfunctory tests will suffice, but daily examinations should be made over a period of several days. Blood found only occasionally points more towards ulcer. When the blood is found constantly, especially in the stools, it is about as conclusive evidence of cancer in some part of the alimentary tract as any one diagnostic sign. On the other hand absence of occult blood is no evidence that gastric cancer does not exist. In about 20 per cent of the cases occult blood cannot be demonstrated.

OPPLER BOAS BACILLUS.

The significance of the presence of the Oppler-Boas bacillus in the stomach contents has been greatly exaggerated. To be sure it is found, if properly and persistently searched for, in over 90 per cent of the cases of cancer of the stomach, but it is also sometimes found in cases of extragastric tumors. Its presence is strongly confirmatory but not absolutely conclusive.

YEASTS AND SARCINAE.

The presence of yeasts and sarcinae is of little value as a means of diagnosing gastric cancer. They are a product of food retention and occur just as frequently in dilated and hypotonic stomachs or in benign obstructions of the pylorus as in gastric cancer with pyloric obstruction.

With all the information to be gained by the laboratory aids mentioned, plus the most important history, the inability to comfortably digest foods, a persistently uneasy feeling in the stomach, eructation of nauseous gases, loss of appetite, aversion for meats, progressive and continuous loss of weight, progressive anaemia with a slight leucocytosis and with absence of the ordinary hyperleucocytosis during the period of digestion, nausea and vomiting, with more or less pain not so severe as the pain of ulcer, we may be fairly confident of early cancer of the stomach. In very many, in fact in most cases, one or more of these phenomena may be absent; but if most of them are present it is safe to make a tentative diagnosis of gastric cancer.

The presence of a tumor, it has been stated, precludes a successful operation. This has been proven fallacious and many cases have been reported with a palpable tumor which was movable, where operation has been easily accomplished, with years of good health following and every evidence of a permanent cure.

Now, we have reached the practical side of this discussion. Already thousands of lives have been prolonged and rendered more comfortable by operation. Reliable statistics show variously from 20 to 40 per cent alive and apparently free of recurrence past the three year limit, and 10 to 15 per cent alive and well so long after the operation that they may be conservatively counted as cured.

In order to accomplish more, two things

will have to be done: First, a more careful study must be made of all cases past 35 years of age presenting themselves with obstinate gastric symptoms. Second, if careful study of the case renders the presence of cancer of the stomach probable, even if not positive, prompt operation should be done. This will probably mean an occasional operation will be undertaken in a case which is not cancerous, but in my experience this will be rare. Much more frequently will it be found that the case thought to be very early has already passed the time when it can be successfully removed.

Hale White says: "If symptoms of serious chronic indigestion first appear after the age of 40, organic disease of the stomach should be strongly suspected, and, if a comparatively short period of medical treatment does not effect a cure, it may be quite justifiable to open the abdomen." Bassler says: "It is well to suspect malignancy in all middle-aged and older persons who give a history of continuous gastric disorder running over a length of time and in whom the intervals of relief have been absent or only very transitory."

We must remember, in dealing with gastric cancer under medical treatment, that all die on an average of 12 months from the appearance of the symptoms. Their only chance is in radical operation. The earlier the operation is done the lower will be the operative mortality and the higher the percentage of permanent relief.

In analyzing my own experience and comparing it with the experience of other surgeons I believe that an average of more than six months intervenes between the beginning of the definite cancer symptoms and the time a surgeon is consulted. As a result, so rapid does stomach cancer progress, that at least two-thirds are inoperable before they see a surgeon.

This is a state of affairs that can be remedied in part at least. During the cancer week which is to occur shortly a large percentage of the laymen are going to be reached. A vigorous propaganda should be carried on, not only during that week of favorable opportunity, but at all times. This propaganda should contain more of optimism than of pessimism. People should be educated to the idea that the diagnosis of cancer is not the sounding of the death knell. That early cancer, at least in all accessible situations, is curable. They should be urged to consult their physician whenever any of the symptoms that might be cancer arise. On the other hand they should be made to understand that neglected cancer is as yet beyond human skill.

The successful putting across of this propaganda is going to increase our responsibilities as physicians. Are we ready? It seems to me that every man engaged in the practice of medicine should look himself squarely in the face and make up his mind to a greater degree of thoroughness in the examination and study of his cases than ever before. In every case presenting the faintest possibility of the existence of malignant disease he should fearlessly analyze the case until he can positively know that cancer is not present. And, above all things, the most pernicious practice of all, when a suspicion of cancer exists, is to pursue a waiting policy until unmistakable symptoms develop. It is a sad commentary, but true, that thousands of cancers have been allowed to pass from operability to inoperability while indecisive doctors have been waiting for positive signs. Fortunately such doctors are becoming fewer and the men who come to such meetings as this are the alert ones. Of late I have been very favorably impressed with the attitude of the medical men over the state in referring cases marked "suspicious." It has resulted in finding some cases suffering from benign conditions, but it has also resulted in a large number of operations for early cancer, almost sure to be permanently relieved.

A very heavy responsibility is being put on surgeons by this propaganda. It is not easy to make a positive diagnosis in these early cases. Radical operations should not be done for benign conditions, and no malignant conditions should be treated as benign. Careful study of the histories and getting all the essential facts, thorough and intelligent use of all the information to be gained by the clinical symptoms and the laboratory findings, and a careful examination of frozen sections, when needed, at the time of operation, will tend to minimize error. All of us should strenuously set ourselves against doing make shift operations for cancer. An imperfect operation is worse than no operation. When a radical operation is done it should be radical in removing all tissue under suspicion and cutting off all the known avenues, especially the lymphatics, by which the cancer is known to disseminate.

Finally, I believe a time is approaching when it is going to be possible to view cancer in a more optimistic spirit than has been possible in the past. Every case of cancer means a fight. The fight should be begun before the enemy has had time to entrench its artillery in inaccessible situations. If we all go against this common enemy of mankind in the fighting spirit and with the spirit to conquer, there is no reason why the mortality from cancer should not be so greatly reduced that it will cease to be the world scourge it is now.

FUNDAMENTAL PRINCIPLES OF RADIATION THERAPY WITH CLINICAL RESULTS POSSIBLE.

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There seems to be little general understanding of the fundamental principles governing radiation therapy especially when applied to growths some distance below the skin surface. This is true in spite of the fact that radiation treatment of superficial new growths has been carried on successfully for so many years that all are aware of its clinical value.

PHYSICAL PROBLEMS.

The success of radiation therapy in lesions of the skin is due to their accessibility, making it possible to get a lethal dose of radiation into the growth. This then is the problem confronting us in the treatment of deep seated new growths. How can we get a lethal dose into the tumor? Due to the cooperative effort of the physicists and the clinical radiologists this problem has been solved. One might think the solution of this problem rather easy but when I tell you that Dessauer (1) and his assistants worked for seventeen years before solving it you can imagine the magnitude of it and the painstaking labor required for its solution. In simple language, the problem was solved by producing a ray which would penetrate completely through the human body (3). With this kind of ray at hand it was then necessary to measure the filtering power of human flesh computed in centimeters. Special instruments were devised for this, the instrument in its final form being a combination of an electroscope and a small ionization chamber called by the German physicist, Dessauer, an iontoquantimeter. By means of this instrument the relative dose received by the skin as compared to tumors at varying depths below the skin was estimated.

Since a large series of measurements of the thickness of the pelvic portion of the body showed the majority averaged twenty centimeters, it was necessary to devise a technique which would give a skin-ten centimeter depth ratio of 2:1 or less. With X ray machines in vogue at the time these experiments were being conducted it was impossible to get such a surface depth ratio so this difficulty was obviated by combining X ray from without with radium applied within the pelvis. This was satisfactory for treatment of pelvic tumors but of course could not be applied to tumors in parts of the body less accessible. In order to render these inaccessible tumors amenable to radiation therapy a more powerful X ray machine was devised which would give a skin-ten centimeter depth ratio of 2:1 or less, thus making it possible to deliver a lethal cancer dose to deep seated tumors even in stout individuals who measure more than the average of twenty centimeters in thickness.

CLINICAL PROBLEMS.

From the clinical standpoint, there are three problems which present themselves for solution whenever a case of malignancy comes to hand. These problems are always present no matter whether surgery, radiation or any other kind of therapy is employed. The first of these is the destruction of the growth itself. The surgeon removes it with the knife, the radiologist destroys it in situ, allowing physiological processes to care for the debris. The second problem is the destruction of all metastases. The same methods are applicable here as in the treatment of the primary lesion except that frequently the metastases are less accessible than the primary growth. The third problem is the prevention of potential metastases, or in other words, the destruction of lymphatics which may contain cancer cells which are not macroscopically demonstrable.

SURGICAL AND RADIATION THERAPY COMPARED.

In cancers of the lip the surgeon solves all three of these problems by excising the primary growth, the palpable glands and the block dissection of all the glands under the chin and jaws. The radiologist accomplishes the same thing by treating the primary lesion and all draining lymphatic areas and does it with so much less of trauma and discomfort to the patient that I have yet to see the first patient who would not choose the radiation method rather than surgery, if both were offered to him. Even where surgery is contemplated preoperative treatment makes the operation easier and safer to the patient since the cancer cells lose their power of cell division (5) when radiated thoroughly.

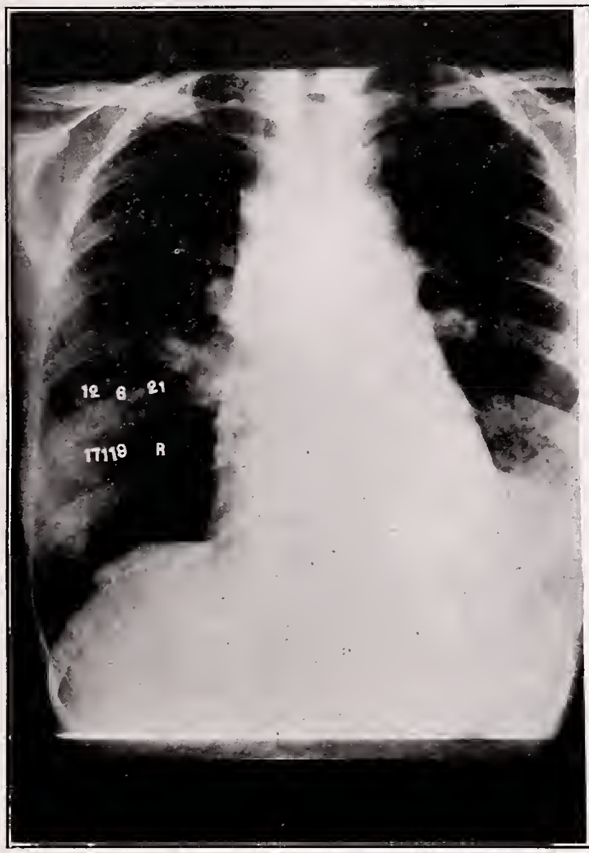

Fig I—Case of Hodgkin's disease with extensive involvement of the mediastinal glands as well as the cervical and axillary glands. Roentgenograms made before treatment.

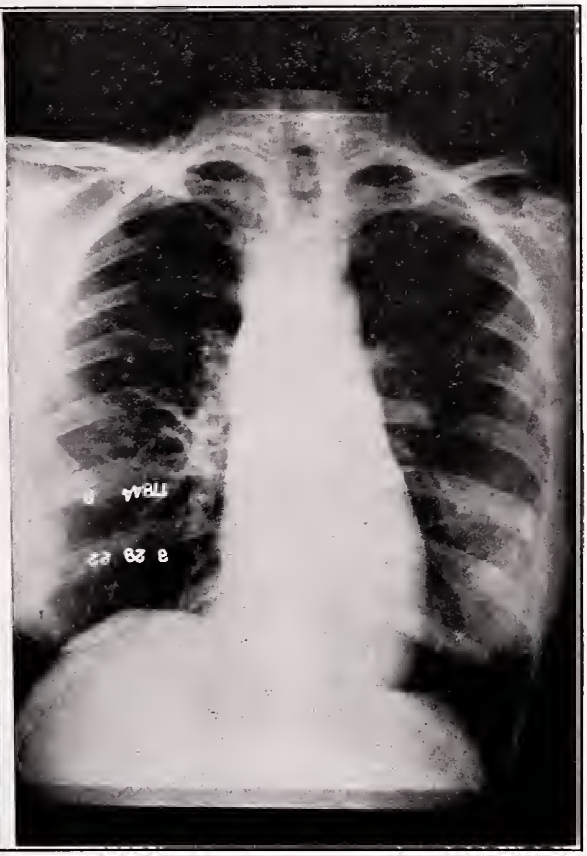

Fig. II—Same case as Fig I, after treatment by X ray therapy. Note the disappearance of the mediastinal glands.

In cancers of the cervix of the uterus the surgeon attempts to solve these three problems by following Wertheim's technique but there has been only one Wertheim and as a result the great majority of cancers of the cervix recur after operation. This is due, of course, to the difficulty in getting rid of the primary growth and its metastases. How much better can this problem be solved by the application of radiation therapy under proper technique so that the whole sagittal section of the patient treated receives a lethal cancer dose (4). This means that the primary growth, the frank metastases and the potential or questionable metastases all receive the lethal cancer dose.

Any one familiar with the treatment of massive pelvic cancer knows this is a real task and cannot be accomplished either by the surgeon or the radiologist of limited experience. Furthermone, the administration of the lethal cancer dose to a sagittal section of the human body is followed by a reaction which makes it necessary to hospitalize the patient for several weeks where the closest medical supervision is available.

X RAY AND RADIUM COMPARED.

Those of us who have been engaged in radiation therapy since the early day have seen the X ray pass through an era of false expectations due to lack of knowledge of its limitations, then gradually return to its useful and proper level. More recently we have seen radium pass through the same process. In order to get at the facts in the case let us turn for a moment to a comparison of the two sources of radiation. Radium is so expensive that probably not more than half a dozen institutions in America have a sufficient quantity to use it successfully at a distance for the treatment of large new growths situated below the surface of the body. This means that radium is usually applied in contact or in close proximity to the growth being treated. Even though heavy filtration is employed under approved technique the reaction on the tissues closest to the radium is much greater than the reaction on the tissues at a distance. This means that in order to reach cancer cells a short distance away from the radium we must overdose that portion adjacent to the radium. This fact accounts for the intense local reaction seen after its administration, resulting in some cases in sloughs, fistulae and much pain. Microscopical section of tumors which have been treated by radium therapy has proven that a lethal dose is received only 2.5 centimeters in each direction from the center point of application. Since this has been proven true beyond dispute, we cannot hope to cure cancers of the cervix involving a mass more than 5 centimeters in diameter when it is possible to introduce the radium into the cervix. When the radium cannot be introduced into the cervix we cannot expect to destroy a mass more than 2.5 centimeters in diameter.

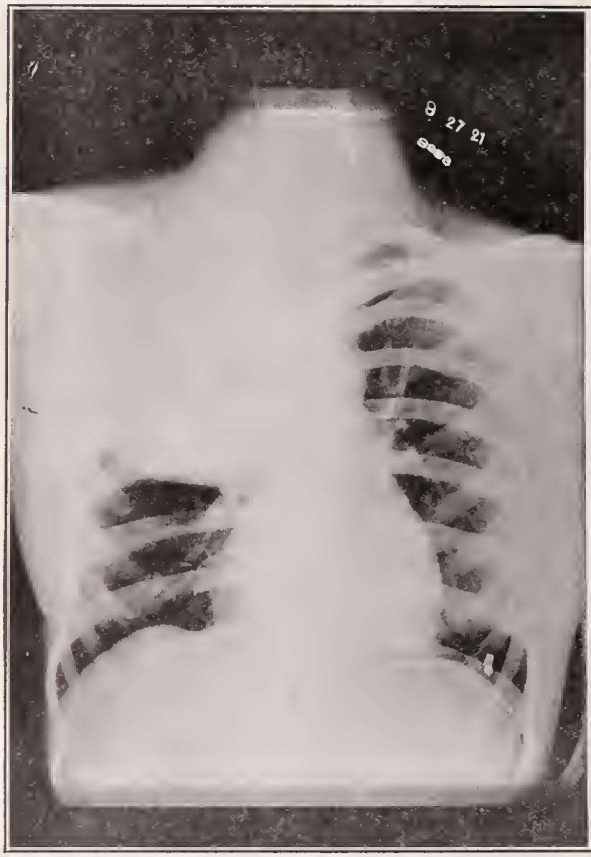

Fig. III—Primary sarcoma of the lung involving the entire right upper lobe. Roentgenogram made before treatment.

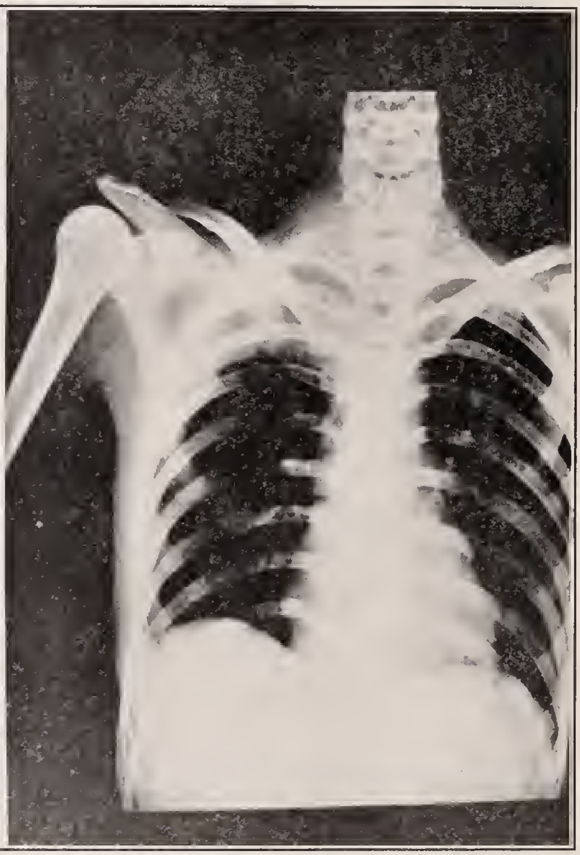

Fig. IV—Same as Fig. III, after treatment by X ray therapy. Note complete disappearance of the growth.

This fact makes it mandatory on the man employing radium in the treatment of pelvic cancer to combine X ray with it if he hopes for success. Since the introduction of high powered X ray machines for therapy, it is easily possible to administer a 100 per cent lethal cancer dose to every cubic millimeter of tissue in sagittal section of any part of the body needing treatment. It is only necessary then for the radiotherapist to know the location and size of the tumor and all the possible metastases actual and potential then proceed to give the lethal dose to all the tissue within the bounds of the area under suspicion.

CLINICAL EFFECTS OF RADIATION.

Symptoms Produced—Since the treatment time necessary in giving the doses employed today is very great, the first symptom produced is frequently that of nausea. Often when treating any part of the abdomen the patient becomes nauseated and tries to vomit while taking the treatment. By employing proper preparation this can be reduced to the minimum. We have the patient enter the hospital twenty-four hours before treatment. An alkaline cathartic is given at once, rest in bed is imperative, liquid diet is instituted and thirty grains of sodium bicarbonate is given every three hours. In our experience it is best to stop the treatment for the day at the appearance of nausea rather than to do as in certain German clinics where the treatment is continued till the dose is completed at the one sitting regardless of the patient's condition. By stopping treatment at the onset of nausea more time can be given the following day and each succeeding day until the dose is completed. This method gives opportunity for the patient to recuperate between treatments and so far as we have been able to judge the action on the tumor is equally effective.

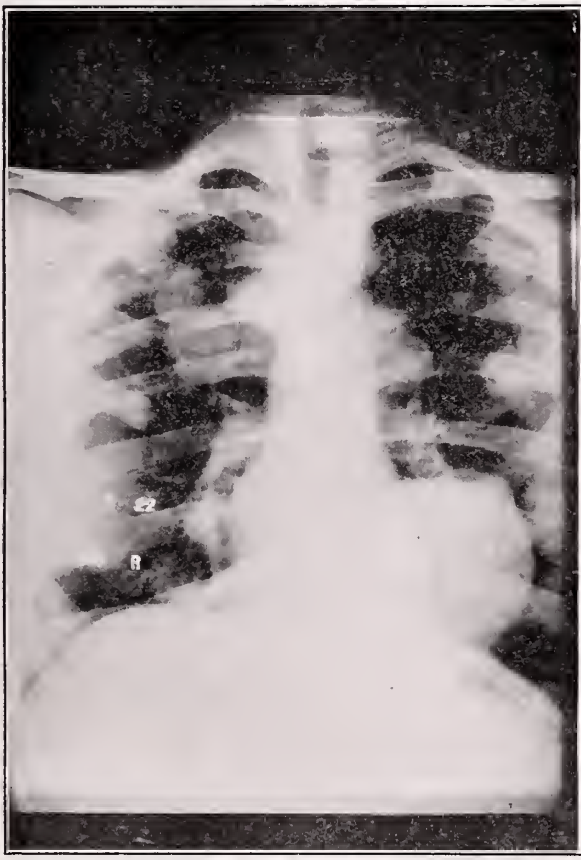

Fig. V—Multiple sarcoma of both lungs secondary to sarcoma of the testicle which had been removed surgically seven months before this roentgenogram was made.

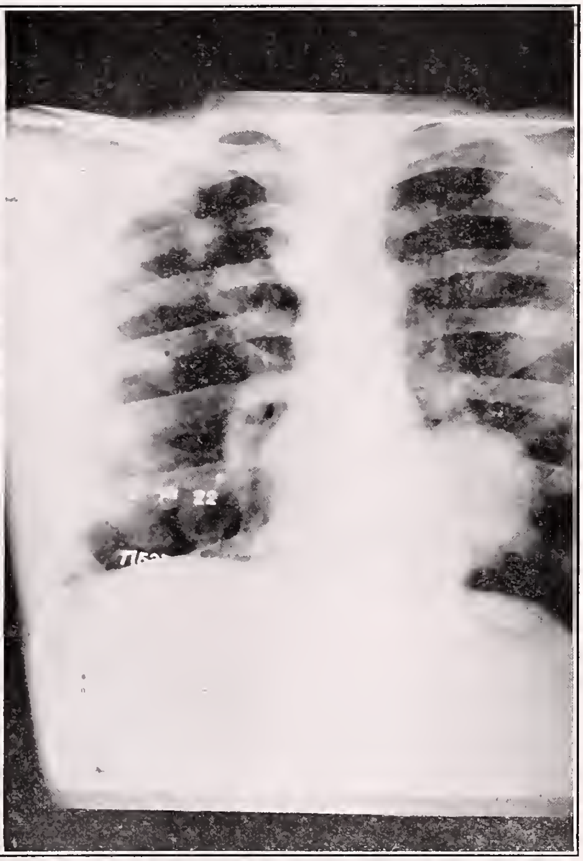

Fig. VI—Same case as Fig. V, four weeks after X ray therapy. Note reduction in size of all the tumors.

Of course another effect of the treatment is loss of appetite and if the location of the growth makes it necessary to give treatment over the epigastrium the ability to digest food is seriously impaired. This is due to the checking of gastric secretions and the edema of the mucosa and congestion of the peritoneal surfaces of the viscera treated.

The above symptoms come on at once during and following the treatment. One week to ten days after the treatment the patient usually develops a severe enteritis manifesting itself by cramping pain, frequent stools and tenesmus. Under the same dosage there is great difference in the degree of severity different patients show, some having only mild irritation while others become very ill from it.

Blood Changes—Within twenty-four to forty-eight hours after treatment the red blood cells decrease from 5,000,000 to 2,000,000, depending on the dosage, the part of the body treated and the rapidity with which the dose is administered. The red cell count returns to normal within a few days in a patient in average condition; of course many patients coming for this kind of treatment are in poor physical condition and have already a profound anemia from the disease. In this type of patient it is well to administer the dose with great care. At the same time the red cell count is undergoing the changes just enumerated, the white cell picture is shifting. The total white count falls from 1,000 to 6,000, the percentage of lymphocytes is greatly increased while the polymorphonuclears decrease.

The hemoglobin index increases in spite of the marked reduction in the number of red cells. This has held true in every case thus far treated and I am unable to explain it.

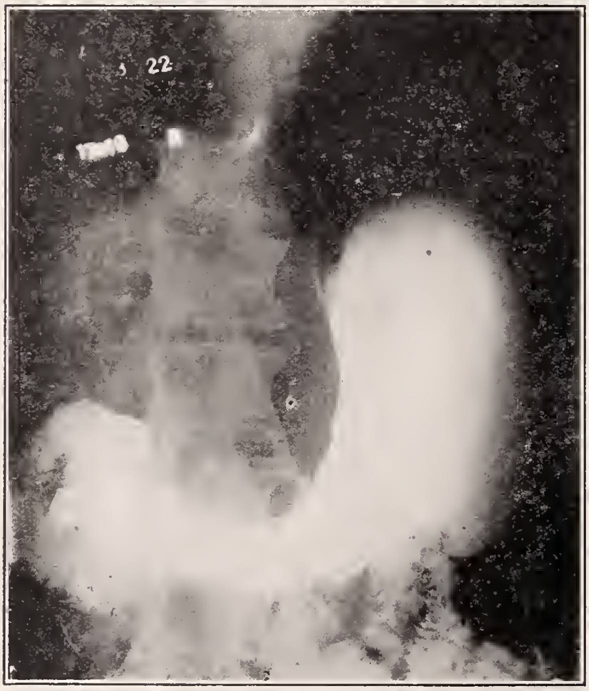

Fig. VII—Roentgenogram of patient suffering from carcinoma involving more than half the stomach. The mass could be seen and felt through the abdominal wall. Within two weeks after deep X ray therapy this mass was no longer palpable.

Macroscopic Tissue Changes—The immediate effect on the tumor is scarcely believable unless one actually sees the change take place. Within a few days the tumor rapidly shrinks up until no longer palpable, in many cases the change being demonstrable at the end of twenty-four hours. I have seen palpable tumors of the pancreas and pelvis rapidly shrink until no longer palpable. Bleeding carcinomas of the stomach quickly stop bleeding so that gastric contents and stool no longer give positive tests for blood.

While these gross changes are taking place other changes are going on which when understood readily explain the symptoms manifested by the patient following massive X ray treatment. The serous surface of the hollow viscera and the parietal peritoneum become intensely injected, showing as a diffuse capillary dilatation. In a case previously treated which came to post mortem examination from death due to myocardial changes, we could see a sharp line of demarcation on the viscera which had been exposed as compared to those unexposed. By carefully removing the viscera and laying them open we found the same difference showing in the mucosa. Lymph glands which, previous to treatment, had been distinctly palpable were reduced to normal size or less. The fixation of the pelvic viscera had disappeared and what was previous to treatment an inoperable ulcerating bleeding mass filling the pelvis was reduced to a small soft necrotic mass of dead cancer tissue.

Microscopic Tissue Changes—The first microscopic change taking place in tissues subjected to radiation (2) is that of an intense edema of the endothelial lining of the small arterioles. The endothelium swells so much that the lumen of the smaller arterioles is closed which probably accounts for the decrease in the size of the tumor within a few hours after treatment. Later this change results in the arterioles being obliterated and replaced by connective tissue.

Concurrent with the above changes the cells of the tumor are undergoing cloudy swelling of the nucleus, rupture of the nuclear membrane, cloudy swelling of the entire cell, rupture of the cell membrane and loss of identity and replacement by connective tissue.

CLINICAL RESULTS.

Where the modern high voltage deep therapy technique is employed the clinical results are surprisingly good. Massive carcinoma of the pancreas, of the stomach, of the pelvis, are reduced to a size which is not palpable within a few days time. The quick response is contrary to previous experience and can be explained only on the intense reaction produced in the arterioles of the growth. I have repeatedly seen malignant masses the size of a cocoanut reduce one-fourth in size in twenty-four hours after the first treatment had been administered. Sarcomas respond with even greater rapidity than carcinomas.

We have one patient who had previously had a hysterectomy for carcinoma and who came to us with an extensive recurrence filling the entire pelvis and following the right broad ligament up into the right iliac fossa almost level with the navel. This mass completely disappeared in five days time so that the tissues of the pelvis remained normal to the touch and with entire movability.

We have had several cases of primary sarcoma of the lung which have been of large size, one of them occupying the whole right upper lobe and another the whole left lower lobe, which decreased very rapidly in size and entirely disappeared.

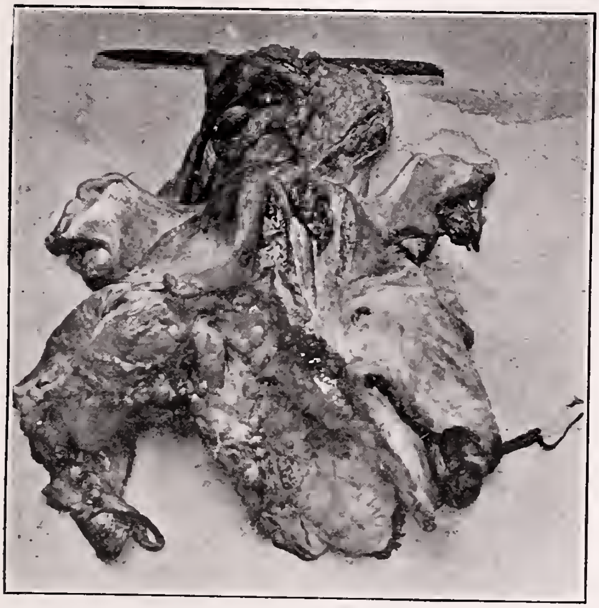

Fig. VIII—Photograph of uterus which has been incised vertically and laid open to show the location of extensive carcinoma of the cervix. When the patient presented herself she had a bleeding cauliflower carcinoma of the cervix with fixation of the uterus and metastases in the parametrium. At the time this specimen was obtained the uterus was freely movable and the site of the carcinoma was soft and pliable.

Extensive inoperable carcinomas of the cervix respond quickly, the bleeding stopping within a very short time, the patients being comfortable and the pelvis very soon becoming free from infiltration.

The following brief case reports are concrete examples of the results of deep radiation therapy.

Case No. 15460—Mrs. A. F. S., forty-seven years of age. Up to March 1918, patient was weak and nervous but menstruation was regular. At this time she began to bleed and this continued to date of examination. In April, 1918, she was cauterized and the cervix was curetted.

Examination—A mass filling the entire pelvis; ulcerating cervix.

Diagnosis—Inoperable carcinoma of the cervix with fixation in the pelvis.

Results—After four series of deep therapy treatments, the patient remained well until February 1921, when she had a recurrence in the anterior vaginal wall. She was treated both by X ray and radium and the growth entirely disappeared and she remained well until January 1922, when a small ulcer appeared on the left half of the anterior vaginal wall. Radium was again applied and there is now no evidence of the growth.

Case No. 17847—Mrs. E. S. W., thirty-one years of age. In August 1921, patient developed a dry hacking cough and in September 1921, noticed several lumps in left side of neck. Since then a collar of glands formed involving the right side of neck. There is difficulty in swallowing because of pressure in neck.

Examination—Palpable glands both sides of neck, those on the right side being so large that the neck is filled out. X ray examination shows the mediastinal glands greatly enlarged, extending well out into the hila on both sides.

Diagnosis—Hodgkin's Disease.

Results—After three series of X ray treatments the hila and mediastinal glands are no longer demonstrable.

Case No. 17395—Mr. T. A. F., fifty-one years of age. In 1918 noticed weakness, swelling of ankles and enlargement of abdomen. Associated with this were hemorrhages from gums and double vision. Wassermann reaction + + + + at this time.

Examination—Spleen occupies entire upper left quadrant, the liver reaches two finger's breadth below the umbilicus.

Diagnosis—Spleno-myelogenous leukemia.

Results—September 1918 had X ray therapy, the spleen then occupying almost the entire abdomen. After nine treatments over spleen the enlargement disappeared until spleen was just palpable and strength returned to patient. Patient felt well until July 1920 when he began to lose strength again. Had X ray therapy in July and remained well until August 1921 when he gradually developed weakness and the spleen increased in size. In January he was given deep therapy treatment with the result that the patient says he feels better than he has in three years and the spleen is barely palpable.

BLOOD EXAMINATION.

January 20, 1922.

Hemoglobin		75-80%	Eosinophiles		2%
Red Cells		2,700,000	Small Lymphocytes		5%
White Cells		80,000	Transitional		8%
	Basophiles	15%	Myelocytes		60%
Myelocytes:	Neutrophiles	34%			
	Eosinophiles	11%			100%
Polynuclear Neut.		25%			

January 23, 1922.

Hemoglobin		70-75%	70%	Eosinophiles	60%
Red Cells		2,100,000	Polynuclear	Neut.	20%
White Cells		83,200	Eosinophiles		5%
	Basophiles	30%	Transitional		5%
Myelocytes	Neutrophiles	10%			

January 24, 1922 Wassermann Reaction Negative

January 31, 1922

Hemoglobin		70%	Poikilocytes		+
Red Cells		3,000,000	Microcytes		+
White Cells		67,200	Microcytes		+
Polynuclear Neut.		52%		Neutrophiles	10%
Small Lymphocytes		2%	Myelocytes	Eosinophiles	12%
Transitional		2%	44%	Basophiles	22%

February 28, 1922

Hemoglobin	85%
Red Count	4,550,000
White Count	10,800

Differential count cells	100
Polynuclear	87%
Small Lymphocytes	11%
Large Lymphocytes	1%
Basophiles	1%

In 1918 when patient first came for treatment white count was 288,000. This case is of interest because he has lived four years after first coming under my observation which is double the usual expectancy in this type of case.

Case No. 16104—Mrs. L. M. A. Fifty years of age. Eight years ago she began to have nervousness and rapid heart; tremor also began at the same time. For the past seven years has noticed her eyes were more prominent and wider open and in the last four years has lost in weight.

Examination: Patient was rather emaciated, anemic and there was visible pulsation of the vessels of the neck, tremor, exophthalmos, both rate and rhythm of heart irregular. Basal metabolic rate plus 38.

Diagnosis: Exophthalmic goitre.

Results: After four series of X ray therapy patient gained in weight, tremor was practically gone and her basal metabolic estimation showed a normal rate of plus 16. Two months later she came in complaining of shortness of breath on exertion and she must sit up to sleep. Examination shows fibrillation and heart block.

Case No. 3945—Miss G. S., twenty years of age. Patient is rather emaciated and complains of a pain in right shoulder of nine months duration . The pain radiates down the right arm and around to the back. This started as sort of a stiffness in the neck and was not preceded by illness of any kind. The pain is gradually increasing in severity and feels like pins sticking her. Patient has not been at all incapacitated.

Examination: Neurological — Patient complained of weakness in back and inability to sit up and the nurse observed that she was unable to turn over in the evening. During the night she lost control of bladder and has been incontinent since. There was definite hyperesthesia for touch and pin prick from the level of the fourth dorsal down and apparently more marked on the right side. She can feel a pin prick but does not recognize the pain as a prick and only as touch. There is some power in the legs but it is much reduced. Good power in arms and hands. Knee jerks present and active, deep sensibility not disturbed.

Physical: Absent breath sounds; dullness on percussion in upper lobe of right lung above the third rib anterior and posterior. Gurgling sound often heard over this area on movement. Heart negative.

X ray: Definitely circumscribed shadow of increased density involving the entire right upper lobe, extending downward to the level of the fourth rib anterior on the right side. The shadow is convexed downward and outward and has the appearance of a new growth.

Diagnosis: Sarcoma of right upper lobe; transverse myelitis with erosion of the spine and ribs.

URINALYSIS.

	9/28	10/17	10/19	10/21	10/25	10/27
Spec. Grav.	1024	1008	1018	1016	1022	1018
Reaction	Acid	Acid	Alk.	S. Acid	Alk.	New
Albumin	0	++	0	0	0	0
Sugar	0	0	0	0	0	0
Pus cells	+++	++			+++	+++
Epithelium Acc			+			

BLOOD EXAMINATION.

	9/27	10/21
Hemoglobin	85-90	90
Red Cells	4,000	
Leukocytes	6,500	16,800
No. Cells	100	100
Polynuclear Neut	48	62
Small Lymphocytes	40	28
Large Lymphocytes	8	10
Eosinophiles	4	

SPUTUM.

Cons'y	thick	
Microsc.	strep	+
	staphl	++
Elastic tissue		+++

WASSERMANN REACTION.

10/4 Negative
10/7 Spinal fld. Alc. (0)
Ace. (+)

ICEBOX METHOD.

Blood Culture—Cell Count—8 monos. Globulin (++)
Colloidal Gold 5-3-3-3-3-4-5-4-4-3

Results: X ray examination shows the tumor mass has entirely disappeared and the right lobe is of normal density.

Case No. 17537—Mr. F. E. C. Seventeen years of age. Patient had mumps at fifteen followed by right orchitis. In the spring of 1921 the right testicle became so large that he consulted a physician. This gradually grew until it was removed in July, 1921. Microscopical section proved it to be a teratoma. The patient recovered and went back to work. In November he developed a nonproductive cough and pain in the right loin. In December metastases were discovered in the lungs.

Examination: X ray examination shows multiple definitely circumscribed areas of increased density in both lungs varying in size from a large pea to the size of an orange.

Diagnosis: Multiple metastatic sarcoma in both lungs secondary to sarcoma of the right testicle.

Results. After the first series of treatment the tumors in the lung had reduced in size and were less sharply outlined, the large one had decreased almost one-half its size.

Case No. 16913—Mrs. J. H. N. Forty years of age. Left breast was removed in December, 1919, also the pectoral muscles.

Examination: One month later — small nodules along the scar in the skin.

Diagnosis: Carcinoma of the chest wall recurrent after surgical removal of breast.

Results: After one series of treatment patient discontinued and was not seen until nearly two years later when she was found to have recurrence in both breasts. There were several nodules in the left chest and a mass in the right breast. After three series of X ray treatment the nodules in the left chest wall are gone and the mass in the right breast is reduced to a fibrous mass.

Case No. 17413—Mrs. E. D. Forty years of age. In August, 1921, patient noticed a lump in the left upper abdominal quadrant. This was associated with nausea three to four hours after meals. She has a cramp-like pain lasting a few minutes which is relieved by food but more food is required now for relief than formerly. She does not vomit.

Examination: Irregular firm nodular mass four fingers breadth in vertical diameter in the left upper quadrant, freely movable. Terminates in a definite nodule about one inch above the umbilicus.

Diagnosis: Probable scirrhous carcinoma of the stomach.

Results: After ten and a half milliampere hours over the abdomen the tumor is no longer visible and is reduced to half the previous palpable size.

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PRIMARY CARCINOMA OF THE LUNG WITH REPORT OF CASES.*

W. O. Bridges, M. D., and R. A. Moser, M. D., Omaha.

Malignant disease may involve the lungs primarily or secondarily, and may either be carcinomatous or sarcomatous in nature. Primary carcinoma is rather rare, but should be held in mind when studying cases of lung disease.

Carmen in his figures states that 2% of all deaths from pulmonary disease is due to primary carcinoma. Ewing records 168 cases in 16,578 cancer autopsies, and Lord 105 in 46,169 autopsies. Saler and Tony in 1913 stated that 156 deaths to every 100,000 are due to primary carcinoma in the lungs.

Three types of carcinoma are found:

1st those arising from the bronchial epithelium.

2nd those arising from the bronchial mucous glands.

3rd those arising from the alveolar epithelium.

Carcinoma arising from the bronchial epithelium is more likely to form bronchiectatic cavities and to cause bronchial obstruction. The growth is generally large, and forms around the hilus of the lung, surrounding the large bronchi, sending projections above the dilated bronchi with resultant bronchiectatic structure within the cancer tissue. This type is seldom of a diffuse form.

Carcinoma arising from the mucous glands is a more diffuse type beginning in the large bronchi completely invading the bronchial walls, and obscuring the normal histological picture as well as gross picture of the lung. Due to the infiltration in the bronchial walls, obstruction of the bronchi results.

Adler states that a great majority of cases of primary cancer of the lungs develop from the bronchi, so that it is strictly a bronchial cancer.

Carcinoma arising from the alveolar epithelium produces masses resembling a pneumonic condition, involving a lobe or larger areas with infiltration cells.

All types of lung cancer produce marked pleural involvement and this generally early in the course of the disease.

The symptoms are:

Pain
Dyspnoea
Cough
Fever
Pleural effusion.
Loss of weight and anemia.

Pain is not always present but when present is rather severe, more so with any pleural involvement, and is an important symptom. The pain once established does not stop with the pleural effusion but is constant.

Dyspnoea will appear sometime during the course of the disease and is due either to an effusion, to pressure on a main bronchus, or to obstruction of a main bronchus. Cough is not characteristic. It is usually dry at first, then productive. Sputum is mucoid and purulent in nature and may be bloody, the blood dark in color is mixed with the muco-purulent material very intimately. The sputum generally appears sometimes after the presence of pain and cough. The sputum should always be examined for tissue particles. Fever of varying degree is found sometime during the course of the disease, is not constant, and not significant.

Pleural effusion is an important condition and appears sooner or later. It may be clear or bloody and often during aspiration may be clear at first and then bloody. On careful search of the centrifuged specimen small particles of cancer tissue may be found in the fluid. The course of the disease is steadily progressive and terminates fatally in three to six months.

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*Read before the Nebraska State Medical Assn., Omaha, April 27, 1922.

The physical signs vary with the size and location of the growth, and pleural involvement with fluid usually obscuring any typical signs. The most characteristic findings are in cases where the growth has reached the pleura without effusion. On inspection the excursion of the affected side is restricted. Percussion dullness or flatness is found and those often well defined. The breath sounds are greatly reduced or bronchial in character. Rales may or may not be present. Fremitus is usually absent with fluid, and increased without it. The use of the X ray both before and after aspiration is of great assistance in a diagnosis.

The following cases are reported from our service in the Methodist Hospital:

Case 1.—L. N., male, age 44. Locomotive Engineer. Admitted to hospital January 3rd, 1920.

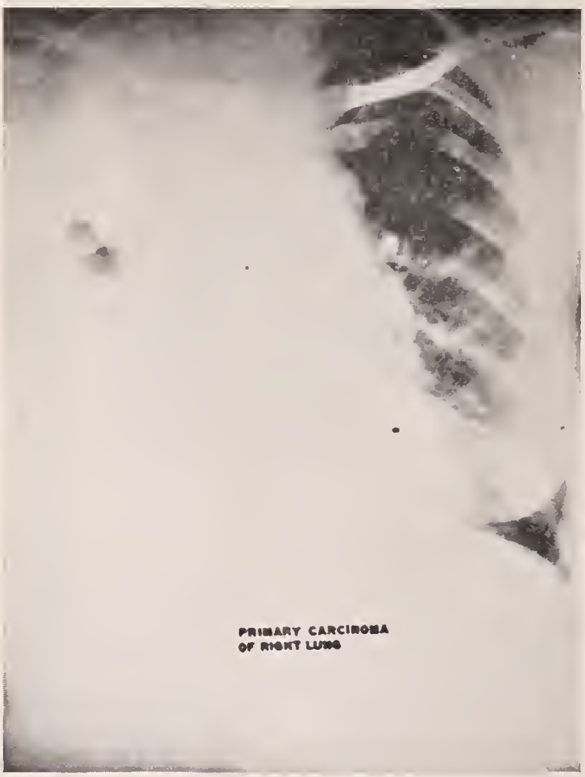

Fig. 1 (Case 2).—Dense shadow over entire right lung except small area in middle lobe. (Roentgenograns made by Dr. A. P. Overgaard.)

Family History: Negative. Previous History: Negative.

Present History: About three months previously patient developed a dry hacking cough, which increased in severity, and later became productive. About ten days after the symptoms first appeared, he began having pain in the left chest, which radiated posteriorly at the level of the 10th dorsal vertebra and gradually spread upward. It was always more severe on exertion. About three weeks later he became dyspnoeic.

Physical Examination: Negative except the lung findings, which consisted of dullness over entire left chest with loss of breath sounds, and fremitus absent. Urine negative. Wassermann reaction negative. Blood count showed Hg. 80%; R. B. C. 4,880,000; W. B. C. 6,040; Polys. 68% Lymphos. 32%; blood pressure 120-90. Temperature was daily around 100 degrees. Sputum contained epithelial cells. X ray evidence of fluid only. Aspirated pleural fluid was bloody and particles of tissue were filtered out and examined by Dr. Wohl who reported cancer. This patient died on February 24th, six weeks after admission. Autopsy not permitted.

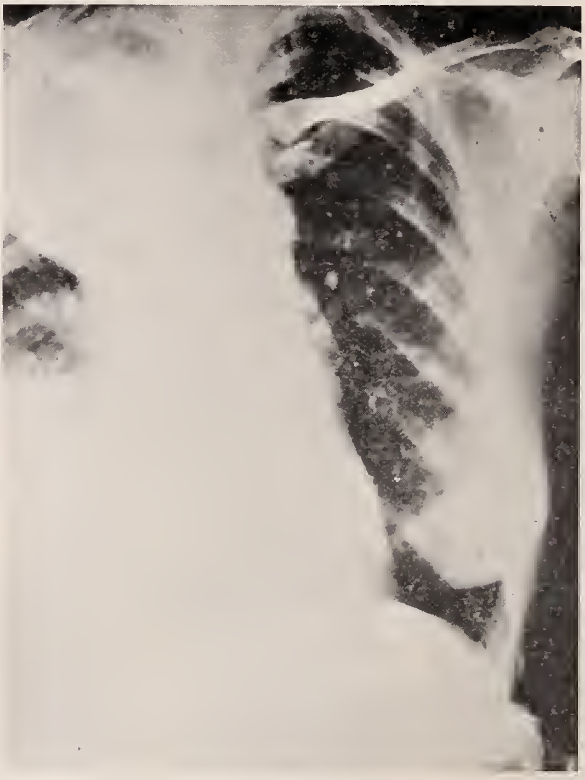

Fig. 2 (Case 2)—After aspiration. Shows part of lung tissue over middle lobe of right lung, also air in right apex.

Case 2.—Mrs. T., female, age 67, Housewife. Admitted to hospital February 28th, 1921.

Family History: Negative. Previous History negative except three years ago broncho pneumonia and four years ago an attack of pain in left hypochondriac region which radiated to right shoulder.

Present History: August, 1920 she began having pain in left hypochondriac region and some shortness of breath with palpitation of heart. From then on she gradually became increasingly dyspnoeic. She had coughed for the preceeding three months, expectorating a sticky mucoid sputum, had become weak, lost flesh, and was incapacitated.

Physical Findings. Patient well nourished. Eyes normal, reacted to light. Face congested. Lips rather dark. Heart apex in nipple line, 6th interspace, no murmurs, first sound rather weak at base.

Lungs: Diminished expansion of right, dull below angle of scapula, the dullness changing with position. Diminished vocal fremitus and absence of breath sounds over area of dullness. Dull over right apex anteriorly. Broncho vesicular breathing below and above right clavicle with prolonged expiration. Slight oedema of lower extremities, otherwise negative.

X ray report was an opaque shadow over entire right lung except a small area over the middle lobe.

Urine contained a trace of albumen. Wassermann reaction negative. Blood count: Hg. 80%, R. B. C. 4,240,000, W. B. C. 6,100, Polys. 64%, Lymphos. 33%, Trans. 2%. Temperature ranged from normal to 99 degrees. Aspirated pleural fluid 40 oz., was blood tinged and found to contain cancer cells by Dr. Wohl. This patient went home and died within two months after the diagnosis was made. No autopsy.

Case 3.—Mrs. R. S., female, age 62. housewife. Admitted to hospital November 21st, 1921.

Family History Negative: Previous History negative except Malaria at age of 15.

Present History: About six weeks before admittance became short of breath on exertion, which had gradually become more severe, and about two weeks before admission developed severe pain in right chest. and breathing became more difficult.

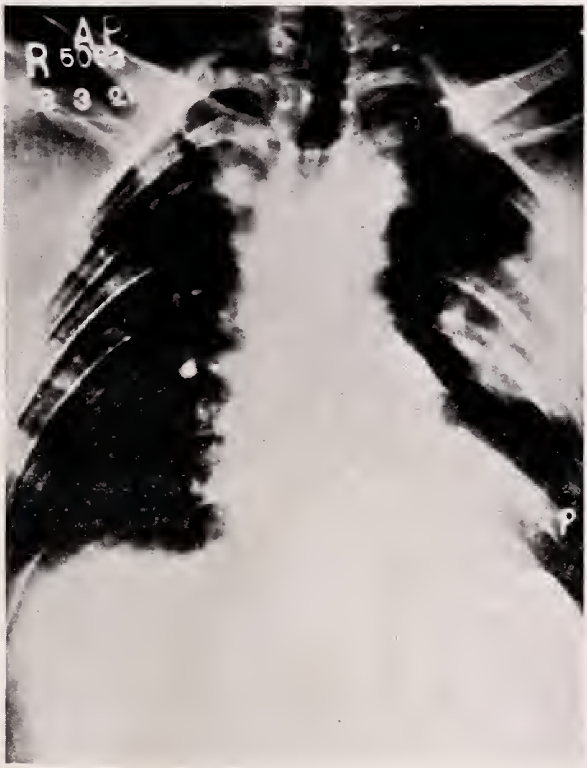

Fig. 3 (Case 4)—Large round shadow in left lung near axilla.

Physical Findings: Normal except over chest. Apex beat of the heart was two inches to left of mid clavicular line, the heart sounds were not clear, no murmurs heard. Dullness over the entire lower right chest. Urine was normal. Wassermann reaction negative. Blood showed Hg. 75%, R. B. C. 4,328,000. W. B. C. 7000, Polys. 67%, Lymphos. 31%. Temperature 99 daily.

X ray report lower third of right lung entirely opaque.

The right chest was aspirated twelve times, at varying intervals taking out between 35 and 44 oz. each time. The first few times the fluid was clear, then later became bloody. At the two last aspirations the fluid came clear at first and then bloody. This patient died about three months after we first saw her, and an autopsy showed primary carcinoma of the right lung.

Case 4.—R. M., male, age 36, farmer. Admitted to hospital July 25th, 1921.

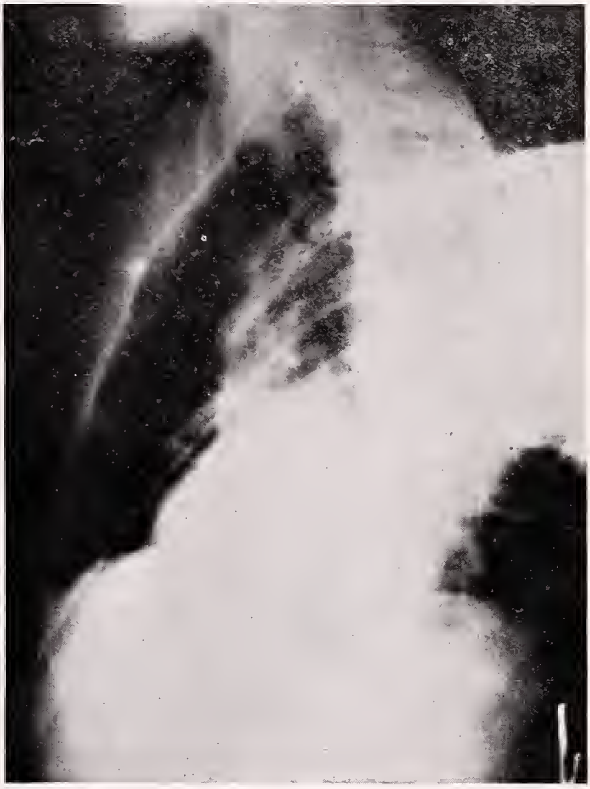

Fig. 4 (Case 4)—Oblique view, showing shadow extending into left lung.

Family History Negative: Previous History negative except he had had pneumonia about four years ago, and had had a cough ever since he could remember with some yellowish sputum.

Present History: In April 1921 while plowing corn he had a sharp severe catching pain in left chest over cardiac region, which was aggravated by breathing, then he had a chill for 10-15 minutes followed by perspiration, after which he had a feverish feeling. From then on he was constantly in bed or sitting around with increased temperature daily. He became short of breath, lost weight, and had night sweats.

Physical Findings: Negative except the chest findings. The cardiac apex was not seen, but palpated in the 6th interspace just inside the mid clavicular line. There was slight lagging of the left chest, and increased fremitus over the left lung, anteriorly and both bases posteriorly. On percussion there was impaired resonance over the lower part of the left upper lobe. An area of diminished breathing corresponding to the area of dullness. There was a friction rub from the 3rd to 5th rib anteriorly over left side. There were a few rales heard over both bases.

Blood pressure 106-54. Temperature around 99 constantly. Blood count Hg. 95%, R. B. C. 5,120,000, W. B. C. 14,700, Polys. 83%. Wassermann reaction negative. Sputum contained a few diplococci. A diagnosis of encapsulated empyema was made, but several attempts at needling were without result. X ray examination revealed a dense opacity in the left lung. An exploratory operation was done by Dr. Morrison and a mass found from which a section was taken and diagnosed medullary carcinoma by Dr. Wohl. The patient died some time later.

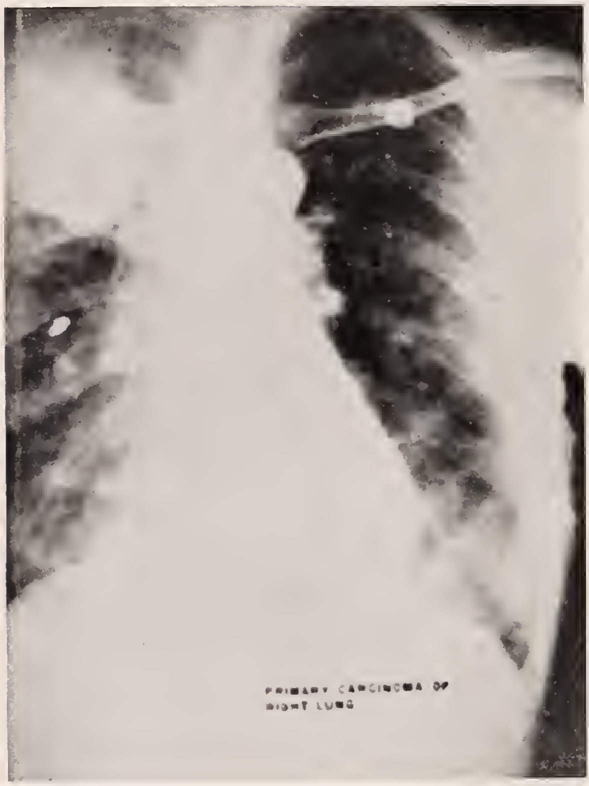

Fig. 5 (Case 5)—Dense round shadow in upper right lung. Marked mottling in both lungs.

Case 5.—Mrs. H., female, age 63, housewife. Admitted to hospital September 9th, 1921.

Family History Negative: Previous History negative.

Present History: In the latter part of the preceding June she noticed pain in her right shoulder which was more severe during the night, being less noticeable when she was up and around. The pain then spread to between both shoulders, and had gradually become more severe. It had always been more severe at night, requiring anodynes increasingly, and she stated that she had not slept more than two to three hours each night. About six weeks before admission she began having a dry cough and became short of breath on the least exertion. She had lost about 15 lbs. since the pain began.

Physical Findings: Negative except findings in chest. The apex beat was in the 6th interspace in the mid clavicular line and the sounds not distinct. On percussion there was a small area of dullness over the upper lobe of the right lung. Breath sounds were bronchial over this area and occasional dry rales were heard over the rest of the right lung, and over the left lung.

Wassermann reaction negative. Blood count: Hg. 55%; R. B. C. 2,780,000; W. B. C. 7,600. X ray of chest showed upper right lobe contained a triangular area of great density rather sharply outlined. The rest of the right lung showed small circular areas scattered throughout, as did also the entire left lung. A diagnosis of primary lung carcinoma was made in this case due to negative findings elsewhere. We were, however, unable to check this by autopsy as the patient went home where she died two months later, the symptoms becoming steadily worse.

Cases one and two of this series were proven cancer by finding cancer tissue or cells in the aspirated fluid from the pleural cavity, by a competent pathologist; case three by autopsy, and case four by exploratory section and microscopic examination. Case five was not proven, but the presumption was established by the clinical history, X ray examination after pleural aspiration, recurrence of fluid and steadily progressive course to a fatal termination. In all five a careful general routine examination was made to exclude cancer elsewhere.

The diagnosis of secondary carcinoma of the lung is simple enough usually, for lung symptoms following known cancer elsewhere, operated upon or not, will suggest the probability of this diagnosis; but primary carcinoma is sufficiently rare to be mistaken for tuberculosis, pleurisy with effusion, serous or hemorrhagic; and syphilis of the lung.

In any case a clear cut study of the differentiation will involve excluding tuberculosis by sputum examination, tuberculin reactions, the absence of continued fever; and the presence of nonproductive cough for a considerable period, early and continued pain, the development of recurring effusion containing blood, and the progressively unfavorable course.

Pleurisy may be eliminated by the non-relief of pain incident to the occurrence of effusion, the hemorrhagic and non-inflammatory character of the effusion, and its certain recurrence after aspiration.

Syphilis of the lung presents many symptoms in common, but the Wassermann and therapeutic tests will determine. Pleural effusion in syphilis is rare, the cough is much more productive, the course is slower. A thorough examination of the entire body will be essential to rule out cancer elsewhere, for primary cancer of the lung only can be assumed on this basis. It must be admitted, however, that excluding cancer of the breast, cancer of the lung is rare as a sequel of cancer elsewhere, whereas cancer of the lung may metastasize elsewhere.

X ray examination of the chest has led us into clearer fields of diagnosis in all chest diseases, and particularily so in cancer. The frequent failures in diagnosis before the autopsy should in the use of this valuable aid be turned to account in greater success.

PATHOLOGY OF PRIMARY CARCINOMA OF THE LUNGS.

By M. G. Wohl, M. D., Omaha, Neb.

The interest in primary tumors of the lungs has been renewed for two reasons—first, due to the recent development of intrathoracic surgery and modern deep X radiation, the scientific diagnosis and therapy of the latter is becoming a matter of more than academic interest; secondly, the recent wave of pulmonary infections, such as streptococcic bronchopneumonia and influenza, constitutes an important factor in the formation of pulmonary neoplasia.

INCIDENCE.

Primary carcinoma of the lungs was said to occur in about one per cent of all carcinomas and in about 0.36 per cent of all necropsies. These figures were arrived at by Adler (Primary Malignant Growths of Lungs and Bronchi, New York, 1912) who found 168 primary lung tumors in a series of 16,578 cancer necropsies.

However, there is at present a realization that the occurrence of pulmonary carcinoma is not as rare as these figures would indicate. Moise (Arch. Int. Med. Dec. 15, 1921) has recently collected five cases of carcinoma of the lung in 375 necropsies at the New Haven Hospital or 1.38 per cent of all necropsies or 17 per cent of carcinomas.

Within the last three years it has been our privilege to study the pathology of three cases of primary carcinoma of the lungs that occurred in the wards of the Methodist Hospital of Omaha.

This apparent increase in the incidence of carcinoma of the lungs, if not significant, is at least worthy of observation.

CASE REPORTS.

The clinical characteristics of these cases have been detailed by Drs. Bridges and Moser. We shall limit ourselves to a pathological consideration of the latter.

Case No. 1.—Mrs. S. The body is that of a well nourished woman, aged 64. Rigor mortis is present. The peritoneal surfaces are everywhere smoothly glistening. Abdominal organs present, no marked gross changes. Chest. Right pleural cavity contains about 250 cc. of bloody colored fluid. The left pleural cavity contains no fluid. There are dense adhesions in the right pleura at the apex. There are thick fibrous bands on the anterior surface extending to the base of the lung. Right lung: By making a frontal section the trachea, bronchi and lungs are revealed. The tracheal mucosa is normal. In the main bronchus the mucosa is deeply injected. Just below the bifurcation of the bronchus to the right lower lobe there is a mass the size of a walnut occluding and destroying the bronchus. This mass extends into the pulmonary tissue. The bronchus leading to the middle lobe is also the seat of a tumor mass somewhat smaller in size. Microscopical: The bronchial mucosa is hyperplastic. The cells are irregularly arranged and heaped up in several layers. The bronchial wall is invaded and solid nests of cells extend into the peribronchial tissues. The cells are of polymorphous nature and have a squamous cell arrangement. The alveoli of the surrounding lung are filled up with nests of cells that extend through their walls. The cells are of the flat, pavement like, cuboidal nature. In other places one sees solid strands of cells in the peribronchial tissue. Diagnosis: Squamous cell carcinoma.

Case No. 2.—Mr. N. Specimen consisted of pleural fluid intermixed with blood. Upon centrifuging the fluid bits of tissue were obtained, the size of a mustard seed. Tissue fixed in formaldehyde and prepared by paraffin method. Tissue showed solid nests of flattened cells. In between these cells there is a moderate amount of connective tissue stroma. Here and there one notices the epithelial cells scattered throughout the connective tissue network. The nuclei of the cells are large and rich in chromatin. In other areas there is a suggestion of the cells assuming a glandular arrangement. Diagnosis: Squamous cell carcinoma.*

Case No. 3.—Mr. McF. Tissue size of thumb, of reddish appearance and rather soft consistency. Microscopical sections show the tissue to consist of a predominance of polyhedral cells. The cells arrange themselves in cord like formations. In between these columns of cells there is a slight amount of connective tissue stroma. In other places the cells are of the cylindrical type. There is no evidence of keratonization nor any tendency towards gland formation. Diagnosis: Medullary carcinoma.

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*In connection with this I would like to call your attention to the importance of collecting particles of tissue from fluids obtained from serous cavities. The particles of tissue should be prepared by the usual paraffin method. The examination of the latter will often reveal the true nature of the lesion.)

Before considering the pathogenesis of pulmonary carcinoma a brief review of the histology of the respiratory tract would not be amiss. The mucous membrane of the trachea and large bronchi is composed of three layers—an outer, ciliated goblet cell layer, a middle of spindle shaped cells, and an inner of wedge-shaped formative cells which rest on the basement membrane. Outside of the muscle layer in the trachea and larger bronchi there are found mucous glands; the glands are most numerous in the larger bronchi and bronchioles and disappear in bronchioles that measure less than one millimeter in diameter, bronchioles that likewise lose the cartilaginous rings. The columnar ciliated cells are gradually replaced by respiratory epithelium of non-ciliated cubical cells which within the alveoli become of the flat pavement type.

Carcinoma of the lung may originate (a) from the epithelium of the bronchial mucous membrane; (b) the bronchial mucous glands, or (c) the alveolar epithelium. It must be stated that in the advanced form it is pretty nigh impossible to trace definitely the origin of these tumors, since the infiltrating tumor mass involves both bronchi and alveolar tissue. Histologically one may also find structures within a single tumor resembling the generally accepted cases of all three varieties. It is in the earlier stages that the characteristic features can be made out. In our cases two apparently originated from the bronchial mucous membrane. In the early stage carcinoma originating from the former produces marked changes in the bronchial mucosa, advancing along the walls of the bronchi and pleura. The lung tissue proper is not definitely involved. The process as a rule begins at the bifurcation and extends upwards toward the trachea and downwards toward the smaller bronchi. The walls of the bronchi are thickened and in some places may be filled with papillary projections. Cases of carcinoma originating in tuberculous bronchiectatic cavities belong to this group. When the process advances the main hilus becomes involved and extension to the pleura takes place. The histological picture of this type of tumor consists of squamous or cylindrical cells. The origin of the squamous cells in bronchial carcinoma has been a subject of much discussion. Haytorn (J. M. Res. 26, 523, 1912) has shown that regeneration and transformation of bronchial epithelium in cases of bronchopneumonia takes place from the formative layer and in no instance has the regenerated squamous epithelium rested on a basement membrane. The same applies to the finding of squamous epithelium in tuberculous cavities. This view would be applicable to metaplasia of bronchial epithelium occurring in carcinomata that are accompanied by extensive destruction of the basement membrane.

Carcinoma arising from bronchial mucous glands presents a glandular arrangement with the presence of mucus; in many cases they lead to distension of alveoli that may show gelatinous or even cystic changes.

Our third case belongs to the alveolar type. In this type of tumor one whole lobe or the whole lung is uniformly consolidated; the lesion resembles organizing pneumonia; the pleura is usually involved. Microscopically there is a filling up of air vesicles with cuboidal, cylindrical or flat cells. There are also seen areas of necrosis with only faintly visible alveolar outlines.

Generalized metastasis in carcinoma of the lung occurs in a large per cent of the cases. In our cases metastasis was chiefly of the intrathoracic nature, being limited to the bronchial lymph nodes and pleura.

ETIOLOGY.

That chronic inflammatory changes often precede or predispose to the formation of carcinoma is too well known to require detailed discussion. Suffice to mention the frequency of carcinoma of the stomach engrafted upon an old ulcer, or carcinoma of the breast following chronic cystic mastitis. In lung pathology the same holds good. Bayle, Wolf and others (quoted by Moise, p. 745) have called attention to the frequent coexistence of carcinoma and tuberculosis of the lungs. In chronic bronchitis and in reparative lesions following broncho-pneumonia there is often a marked epithelial overgrowth with frequent metaplasia of alveolar epithelium. These changes may, according to Ribbert and Menetrier (quoted by Ewing Neoplastic Diseases p. 786) lead to cancer formation.

Thus there is considerable evidence in favor of chronic irritation preceding carcinoma. The possibility of carcinoma being induced by acute inflammatory changes has recently been brought to the medical attention by the work of Winternitz and his associates. (The Pathology of Influenza, Yale Press, 1920). This phase is particularly interesting in connection with the recent epidemic of broncho-pneumonia and influenza. In this disease the pathology of the bronchial mucosa simulates very closely the lesions following experimental injury by intrabronchial insufflation of dilute hydrochloric acid. The insufflation of a solution of hydrochloric acid causes necrosis of the tissue which varies with the amount and concentration of acid used. With weak solutions the epithelium alone may be destroyed, and it regenerates in an orderly manner, consisting of a single layer of cells. With more marked pulmonary injury, where the basement membrane necroses, the regenerating epithelial cells pile up and grow into the surrounding parenchyma. Where considerable basement membrane is destroyed, the epithelial cells extend out along the scaffolding of necrotic alveolar walls and the accumulation of epithelial cells may be so irregular as to resemble histologically carcinoma. Winternitz, Wason, and McNamara (loc. cit) in their study of the pathology of the recent epidemic of influenza have pointed out the frequent destruction of basement membrane with an active epithelial cell proliferation; while in some cases the regenerative changes take place in a more or less regular manner. In others, however, a picture resembling the lesion following extensive injury by hydrochloric acid is observed, namely formation of epithelial nests with invasion of the parenchyma that in some cases is almost indistinguishable from an infiltrating carcinoma. In the majority of cases the proliferated epithelium in post-influenzal regeneration may either remain quiescent or regress as was pointed out by Moise, yet it is not improbable that in a small percentage of cases the epithelial cells may assume activity and develop into a true neoplastic process. It is quite logical to suppose that the relatively high percentage of cases of pulmonary carcinoma observed within the last three years has a relationship to the wave of the past epidemic of bronchial infections, particularly influenza.

DISCUSSION.

W. S. Evans, M. D., Columbus: I do not care to discuss this paper, as I consider that the cases have been properly worked up in every particular. I might say, however, that I think there is one lesson to be learned which is of benefit to all of us.

I refer to the use of the X ray in diagnosis of chest conditions, and remember a recent case in illustration where we were unable to make a diagnosis of a chest condition in a child of fifteen months, owing to restlessness and fright. I put her under the X ray and found a right lower lobar pneumonia, which went through the regular course, the fever falling by crisis in the typical manner.

It has been my privilege to examine many of the overseas gas cases soon after injury, and if, as these gentlemen say, chemical irritation will produce carcinoma, all of us country fellows are liable to find it when we are not expecting it.

Dr. Bridges, Closing: I assisted Dr. Moser in preparing this paper based on cases we studied. The subject is one of special importance to bring before the Association—first, because of the rarity of the condition heretofore manifested in the literature; and second, we begin to realize it may not be so rare as has been presumed.

I want to say that X ray chest examination has led us into a clearer field for diagnosis of chest diseases. Many would have gone with a diagnosis of tuberculosis of the lung, or some unknown diagnosis.

In recent reports from the Geneva Hospital of 26 cases of primary carcinoma of the lung, there were only six diagnosed before autopsy. We know even men with wonderful experience in large European hospitals may defer their diagnosis until autopsy. I think the X ray today will lead us away from this indeterminate record.

I want to call attention to the fact the International Medical Clinics of last August has one of the best articles on this I have seen, reported from the Mayo clinic. The Mayo clinic volume of three years ago also contains a splendid article on this subject.

Two of our cases presented in my office—one had previously been advised to go to a hospital for pleurisy. The pain disappeared, and the patient was thought to be well, and dismissed. I found the chest full of fluid, and the result was determined by further examinations and study. The other came in with some complaint of dyspnoea. This case was sent to the hospital and elaborated by further study.

The thought prominent in my mind is that detailed study of these cases, including X ray examination and aspiration, will lead us into a more thorough field for diagnosis of chest conditions.

Dr. Overgaard, Closing: I want to emphasize that the X ray examination of the chest calls for a thorough fluoroscopic examination from all angles.

In the case in which I showed three slides, you could localize the shadow and know how to make the plates. The stereoscopic films we use nowadays aid in helping to clear up these obscure cases. The fluoroscope gives the guide and rule to go by. If you make films, you should be able to interpret them.

THE CANCER PROBLEM.*

Palmer Findley, M. D., Omaha, Nebraka.

You are all more or less informed on the results of the cancer campaign in Nebraska last year, In the campaign of the first week of November, 1921, no less than 500 doctors of Nebraska participated; there were 44,800 pieces of literature distributed, 5,408 news items published in local periodicals, 15 scientific programs in various medical societies and approximately 35,235 persons heard the message in various cities and villages of the state. In all there were 200 lectures delivered in the state. In Omaha, under the leadership of Dr. Banister, forty talks were delivered to an aggregate audience of about 10,000 people in churches, clubs and various lay organizations.

The report on the National Campaign published by the American Society for the Control of Cancer in December, 1921, estimates the number of persons who were reached directly by lectures alone in the United States as 600,000, that several hundred thousand more received the message by short addresses in churches, lodges and theatres, that upwards of 5,000,000 pieces of literature were distributed; that countless other thousands saw display posters or lantern slides on the screens of moving picture houses and that the newspaper and magazine publicity covered pretty generally the whole reading public of our country. It is estimated that not less than 10,000,000 persons received the message in some form or other in the time designated as Cancer Week.

The American Society for the Control of Cancer was founded in 1913 but the war so disarranged its activities that little was accomplished to attract nation wide attention until the campaign of 1921. Encouraged by the success of this campaign, the Board of Directors have decided to conduct another Cancer Week—this time a little later in the month of November so as not to conflict with the November elections.

Dr. Charles A. Powers of Denver is the president of the organization for the ensuing year. He writes:

"Few of us realize the importance of continued bombardment in every possible and suitable way. We must remember that results will not be immediately apparent and we are not to be discouraged if statistics do not show an immediate decrease in cancer mortality. It is an undoubted fact that during and following Cancer Week, thousands of lives in this country and Canada were saved as a result of the educational campaign. This cannot, of course, be immediately apparent—two to five years must certainly elapse before the result of this work is seen. I believe that it is quite within reason to expect that suitable educational work will diminish cancer mortality and suffering by one third at the end of ten years. In this connection each state may well constitute itself an area in which intensive work is to be done."

Referring to our part in the campaign of last year let me say that while the work was strenuous and called for much sacrifice on the part of our local profession I am sure that we will all say it was well worth while. The profession entered into the work with a zeal that was most gratifying to those who were charged with the responsibility of making Cancer Week in Nebraska a success. In answer to a query from me addressed to the National Secretary, Mr. Frank J. Osborne of New York City, I have the following reply:

"It is difficult to establish a measure of efficiency which will accurately show how the various states compared with reference to the amount of work accomplished during the "Cancer Week" held last fall. Some states did remarkably well in a few cities, but practically nothing in the outlying districts. There are some half dozen states which we have placed in a class called "excellent," and Nebraska easily finds a place in that list. As a matter of fact it would be impossible to find a state which covered its whole area more adequately than did yours, and this was doubtless due to the enormous amount of cooperation which you received from the medical profession. It is evident that the physicians in Nebraska have arrived at that point where they appreciate that if it is desirable to disseminate medical knowledge to the lay public, they, as the representative medical authority in their state, should turn to, and do it! This really is the only hope. Only the physicians have the knowledge. We hope that the entire State Society and the constituent county societies will get behind you and make the next campaign from November 12-18 even more successful than the last."

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*Read before the Nebraska State Medical Assn., Omaha, April 27, 1922.

Early in the fall we will organize for our next campaign and in the meantime we earnestly invite suggestions from any and all the profession as to means to be adopted in the campaign. We want to profit by our sins of omission and commission of our last campaign and you can give us valuable assistance by conveying your suggestions to our Secretary, Dr. A. P. Overgaard.

The following suggestions are offered tentatively for your consideration:

1. A larger participation by the local profession in their respective communities in addressing the lay public.
2. Four minute talks by the local profession in moving picture houses. It is estimated that in this way alone fully 500,000 people can be reached in the seven afternoons and evenings of Cancer Week in the State of Nebraska.
3. A brief message read by the pastor or some physician of the congregation in all churches on the Sunday of Cancer Week.
4. Broadcasting through wireless wherever possible.
5. Intensive publicity in our local newspapers.
6. To the end that we may accomplish the greatest amount of good with the least amount of harm, let us adhere to the policy of the National Organization by conveying to the public a "Message of Hope" and scrupulously avoid the fearsome features of the subject. I would earnestly advocate laying greatest stress upon the precancerous conditions; the lump in the breast, the sores about the mouth, the pigmented mole, the ulcers of stomach and bowel, the lacerations and erosions of the cervix. Herein lies the hope in the cancer problem: Get the cancer before it is a cancer for if we wait until malignant changes have developed, we have waited too long and the results will be disappointment and defeat in the vast majority of cases.

DISCUSSION.

Morris Nielsen, M. D., Blair: It is truly very gratifying to feel we are living in a state which merited such a splendid letter as Dr. Findley has received and assume Nebraska was pretty well up in the lead with all of these states marked "excellent," and it is remarkable when you consider that our state has so many outlying districts, that these have been reached so thoroughly and effectually. It has been very apparent indeed, that in the communities where this thing was a success, it depended largely, or was due, to the efficiency and energy of the local men. In communities where it was not so successful, it was due to the failure of the local men.

The personal effort and energy of local men must, and always will, be a factor. There are certain things we can say and do. Something must be done, and it must be done right away. I feel everyone is interested, inasmuch as you all collaborated so thoroughly and fully as to make this standing we have attained possible.

Out of courtesy to my friend, Dr. Stark, who wants to say a few words to you—and what he has to say is really apropos—I will defer to him.

Lucien Stark, M. D., Hartington: Since the doctor has called my attention to the fact that I have some words to say, I will say them, although I would be perfectly willing for him to do so.

Speaking of the Cancer Campaign in churches and picture houses, I believe it to be an admirable thing; but when you arrange a four minute talk on the cancer question to lay audiences, write it in words of one syllable—words the average layman will, when he hears them, know what you are talking about and not wonder if you are trying to advertise some new make of an automobile.

As to the campaign in churches, you have had that the past year. Personally, I would favor a cancer campaign in the moving picture shows rather than in a church because nine times out of ten it is like your criminal whom you are trying to reclaim. The fellow who needs it does not go and the fellow who goes does not need it. The larger number of the people attending church are of the class which seeks medical advice when something appears which they do not understand. You must reach the man who needs the message, rather than expect him to come to you.

Dr. Findley: I agree with Dr. Stark. The moving picture houses are ideal for these meetings. By giving four minute talks before movie audiences we could reach a half million people in Nebraska and not less than thirty million in the United States. I am sure we could get into our talks all the laity needs to know about cancer within the time limit of four minutes.

CARCINOMA OF THE OESOPHAGUS.

George P. Pratt, M. D., Omaha, Nebraska.

The oesophagus is quite often the seat of a cancerous growth and the subject is chosen to stimulate interest in the making of an early diagnosis. Since the establishment of "Cancer Weeks" and "Cancer Programs" by the profession, there is an increasing number of people who present themselves to their physicians to find out if this or that symptom might indicate a cancer. The increased interest aroused by these campaigns for the laity, will continue to cause patients to consult their physicians sooner, thus favoring earlier diagnosis, the recognition and eradication of precancerous conditions and furthering the study of early and suggestive symptomatology. One of the advances in modern medicine has been the management of predisposing, precancerous conditions. The development of our knowledge of cancer is very slow but ceaseless observations are bound to be of benefit.

This discussion of the etiology will be limited to local predisposing causes, omitting all theories of the fundamental cause of cancer. The Arabian physician, Avenzoar 1070 to 1162, treated cases of carcinoma of the oesophagus. He originated the feeding of oesphageal cases by means of the tube and nutrient enemas. However, in the earlier literature mention of the condition is extremely rare and the oesphagus was not counted among the organs frequently affected by cancer. Its frequency has increased materially in the recent decades and seems to follow civilization, rarely affecting the natives of tropical and subtropical countries. It occurs at the usual cancer age of 40 to 60 years and is found much more frequently in men than in women, the proportion being 3.5 to 1.

Cancer may develop in any part of the oesophagus. The relative frequency of the location increases from above downward. In 2,783 cases reported by Lerche, the lesions were found at the upper third in 14.35%, the middle third in 37.7% and the lower third in 47.9%. The location of cicatrical strictures from the ingestion of corrosive fluids also increases in frequency from above downward, and correspond exactly to the seats of predilection of cancer. The location of these strictures are determined by a definite physiological law. The deepest scarring from corrosive fluids will obviously take place at the points of intimate contact and at the portion of the oesophagus where the contents remain longer in contact with the oesophageal mucosa. The narrowest part of the oesophagus is at the inlet and from there to the cardia the lumen increases in size, except at the level of the cricoid and the point where it is crossed by the left bronchus, where there are slight constrictions. These anatomical constrictions, which correspond respectively to the limits of the upper and middle thirds, undoubtedly influence the site of many cases of cicatrical stenosis. The speed of the oesophageal contents decreases from the inlet to the cardia and comes to a full stop for several seconds before entering the stomach. This permits the corrosive substance to remain longer in contact with the mucosa of the lower third of the oesophagus, producing a deeper injury and unquestionably accounting for the preponderance of the pathological lesions at this point.

Since the distribution of cancer of the oesophagus corresponds exactly to that of cicatrical strictures, probably for the same physiological and anatomical reasons, it seems logical to look to food as a cause of chronic irritation which leads to malignant changes. It has been suggested the excessively hot drinks, irritating foods and alcoholic beverages, which are taken at the present time by people living in the temperate zone, might have a direct bearing on a condition of chronic irritation and consequently cancer of the oesophagus. The condition less frequently affects women because they drink more slowly and take smaller swallows which pass through quickly thus saving the oesophageal mucosa. Fluids, especially soups, tea and coffee, are repeatedly taken very hot and are perhaps the chief offenders.

Histologically squamous-cell carcinoma or epithelioma is found to predominate; a columnar or spheroidal-cell glandular growth is more commonly found near the cardia. When of the latter variety they are usually of the scirrhus type. The tumor begins in the epithelial lining passing into the loose submucosa and spreads transversely around the lumen. At the same time it infiltrates the muscular coat. The extent to which it involves the circumference varies, but as a rule, as in other parts of the digestive tract, it produces an annular stricture. Ulceration is usually present, and diminishes the obstruction. The oesophagus above the stricture is usually only slightly dilated, but there is marked musculature hypertrophy and an associated oesophagitis due to stagnation of the food.

The growth tends to invade the neighboring organs by extension and ulceration. The oesophagus passes through the posterior mediastinal space and lies in close proximity to the vagus and recurrent laryngeal nerves; the aorta; the azygos veins; the thoracic duct; mediastinal glands; the bronchi; the lungs; the pleura; the pericardium and the vertebrae. Depending on the location of the growth any of these structures may be involved. The author recalls a case of pyopneumopericarditis in which a fistula was found between the oesophagus and the pericardium.

Secondary growths most frequently occur in the lymphatics of the oesophagus which drain into the inferior deep cervical glands and the glands of the posterior mediastinum. From the cervical glands it may spread to other structures in the neck and secondary carcinomata of the thyroid gland have been described. Visceral metastases are rather uncommon.

In discussing the symptomatology the relation of the symptoms to the stage of the disease must be emphasized. If we are to help the patient the diagnosis must be made early when the new growth is very small. The symptoms of the early small lesions of the oesophagus are often characterized by their insignificance and frequent absence. This is unfortunate, since it causes the addition of carcinoma of the oesophagus to the long list of diseases which must be excluded in cases presenting obscure intrathoracic symptoms. This is especially true in men past 40 years of age.

Unfortunately pain is not a constant symptom. The nerve supply to the oesophagus is not highly specialized in determining pain and locating sensations. The patients seldom have any definite idea of the correct seat of the lesion, often locating a lesion of the lower third at the middle or upper part of the oesophagus and vice versa. Usually the pain starts immediately after eating and continues as long as the irritation from food is present. It may be located directly under the sternum, well back toward the vertebral column or between the shoulder blades. The patient feels as though the food had become stuck on its way down, or he may have a constant sticking sensation, as though he had swallowed some small foreign body, often described as a tooth brush bristle or a fish bone. The degree of pain depends largely on the amount of associated oesophagitis. Severe spontaneous pains in the chest, radiating to the shoulders, neck or back may be an early symptom. So vague and inconstant are the pain symptoms, that one is driven to an old rule, namely, to carefully investigate every intrathoracic pain.

Dysphagia is the most constant and one of the earliest signs. In 90% of the cases the difficulty in swallowing develops gradually with regurgitation, until finally even fluids can not be swallowed. It is very rarely intermittent. Occasionally, however, swallowing may suddenly become easier due to separation of projections of the growth and at other times the obstruction may suddenly become more absolute from impaction of food in the constriction. In the majority of the cases the dysphagia becomes complete for solids five or six months from the beginning of the first symptom. The regurgitation takes place shortly after swallowing and consists of sour undigested foods with an alkaline reaction and mixed with considerable mucus. It may contain food or disintegrated tissue, which should be examined microscopically. On account of the hypertrophy of the oesophageal musculature above the obstruction, the contents may be expelled with considerable force. In spite of the fact that dysphagia is rather constant and an important symptom, a thorough examination of the oesophagus was not made in a large series of cases, until on the average of four months after its onset. As a rule the diagnosis is not made until the obstruction becomes complete.

Exaggerated salivation due to the irritation caused by the oesophageal lesion, the salivo-oesophageal reflex of Roger, has been described as an early and constant finding. The ptyalism may be more noticeable in the mornings, after eating or after drinking.

Cough is not uncommon, and when there is a fistula between the oesophagus and the bronchi it is severe and constantly produced by the intake of food. The breath is often offensive. Excessive hunger may be present at first but it is shortly replaced by an indifference to food. Hoarseness, brassy cough and even loss of voice result from pressure on the recurrent laryngeal nerves and usually occur later in the disease.

The fluoroscopic and stereoscopic examination, especially in the well advanced cases, may give such a definite and clear cut picture as to render other methods superfluous. It is the simplest procedure and should be tried first. The barium shadows in the oesophagus may show an obstruction which is constant in its location; dilated above and ending below in a narrowing which may be either sinuous or straight. Occasionally the shadow suggests an hour glass constriction, with an isthmus dividing the upper and lower pockets. The border of the tumor may show as a distinctly irregular line, even rather early in the disease, in contrast to the smooth outline seen above the benign stricture.

Sounding for these lesions may be contraindicated for several reasons. It must be borne in mind that possibly a bougie or tube may be passed into an ulcer and down into the loose submucous tissue which offers very little resistance. The dysphagia is often due to pressure from some extra oesophageal tumor and cases of fatal hemorrhages have been reported from rupture of an aneurysm from an oesophageal bougie. After one is satisfied that there are no contraindications, it is best to begin by passing an ordinary stomach tube in the usual manner. Any obstruction can be demonstrated and by measuring the length of tube passed an idea of the location of the stricture can be determined. The distance from the teeth to the cardia is approximately 16 inches, to the cricoid 6 inches and to the point where the oesophagus is crossed by the bronchus 10 inches. Bougies may be used if necessary for further instrumentation.

The oesophagoscope in the hands of a trained specialist makes it possible to diagnose smaller and earlier lesions. Small ulcers and malignant growths can not only be seen, but small pieces may be removed for microscopic examination. In case the growth is situated at the cardia, it can be ascertained whether it originated from the stomach or the oesaphagus. Oesophagoscopy should be resorted to more freely. Too often patients with vague symptoms referable to the oesophagus are not thoroughly examined. The physician may consider it some nervous condition and give a placebo. It is only by a thorough examination including oesophagoscopy that these cases can be diagnosed early and treated while they are still in the precancerous condition.

Carcinoma of the oesophagus heads the list of causes of dysphagia by such a wide margin, that every case of oesophageal stricture should be considered suspicious of cancer. It is accountable for more than 75% of the cases of slowly increasing dysphagia. If the patient is in the cancer age, the obstruction is due to malignancy in 90% of the cases. Cicatrical contractions are next in frequency. The latter condition is so frequently due to corrosive poisoning, that a few questions asked the patient will usually establish or disprove its existence. More uncommon conditions causing dysphagia are pressure diverticulum, cardiospasm and mediastinal tumors, all of which are easy of diagnosis by means of the history, physical signs and X ray examination.

Benign ulcers of the oesophagus constitute in many cases the precancerous stage and their early recognition is possible by means of the oesophagoscope. The symptoms are similar to those of early cancer and are likewise very indefinite. Ulcers may be due to a great variety of causes some of which are as follows: Pressure from cricoid cartilage, from a struma, aneurysm or a neoplasm; an abrasion over an oesophageal varix with formation of a varicose ulcer; the swallowing of quantities of hot or cold food and hurried eating; swallowed foreign bodies with erosion of the mucosa; the ingestion of corrosive fluids; syphilis; tuberculosis and association with peptic ulcers. The use of the oesophagoscope early and on the slightest suspicion will make the diagnosis possible in many of these cases while they are yet benign. The benign traumatic ulcers respond quite readily to complete rest accomplished by feeding the patient through a duodenal tube and are usually healed after 3 to 4 weeks treatment.

Carcinoma of the oesophagus terminates fatally within the first year, the patients usually dying from inanition or from some complication of the new growth in the mediastinum.

Medical treatment offers very little encouragement. The surgeons have accomplished some brilliant results by resection of accessible portions of the alimentary tract for malignancy such as cancer of the stomach and colon. The removal of cancer of the oesophagus on account of its inacessibility is a very difficult operation and has proven almost as hopeless as the medical treatment. However, Lillienthal, in 1921, reported in the Annals of Surgery, Vol. 74 a very difficult three stage operation in which he successfully resected a carcinoma of the middle third of the oesophagus. Dr. Franz Torek eight years previously had performed a similar operation with recovery of the patient, and this case for many years was the only authentic recovery.

Radium can be applied directly to the carcinoma. If the patient can swallow, the applicator on a string is allowed to pass into the stricture and held in place for the required time. A fluoroscopic examination may be used to fix the location. Another procedure is to attach the radium to a piano wire with a ring which slips over a swallowed silk thread. Or it may be put in the proper location after a gastrostomy. Holtz and Soter have reported very good results from irradiation. Roentgen ray exposures are used to supplement the radium. The early cases respond best, but the treatment should be given even in large growths, as metastases from these tumors develop very slowly. Extensive scar tissue formation follows irradiation, with resulting cicatricial stenosis, which must be dilated by means of oesophageal bougies. This complication is unfortunate, but should not be considered in the face of the value of the treatment otherwise. On account of these after effects radium should not be used on benign lesions and an accurate diagnosis of malignancy is essential, lest the cure be worse than the disease.

In reviewing the literature one is surprised by the lack of interest in oesophageal carcinoma. This may be due to the bad prognosis. A more energetic attitude may open up new possibilities in this field. The purpose of this paper is to urge a more careful study of the early symptomatology and to emphasize the importance of the immediate objective examination of patients suffering from symptoms which are in any way associated with the oesophagus.

CANCER OF THE RECTUM.

Louis E. Moon. M. D., Omaha, Neb.

If you will review the statistics of cancer, you will be led to believe that cancer of the rectum is increasing in frequency. Whether this is true, or only apparently so, due to better diagnosis, I am unable to say.

Statistics (1) from German and French sources in 1900 showed that of 45,906 cancers, 4.8 per cent were in the rectum. Kaufmann (2), more recently in tabulating a large number of cases, places the occurrence in the rectum at 5.25 percent. Mandl(3), in February 1922, reported 779 cases of cancer of the rectum, and states this number to be 16 percent of the cases from which they were collected. This percentage may be high. Ewing (4), in 1919 stated that cancer of the rectum ranks fifth in frequency in occurrence in man. These figures should serve to remind us that the rectum is one of the most frequent sites of cancer and should emphasize the fact that no physical examination is complete without a rectal examination, even though the patient gives a negative history as to rectal trouble. Sex is undoubtedly a predisposing factor, in that nearly all statistics show a proportion of 2 to 1, with the predominance in the male.

The age incidence of malignancy in the rectum differs slightly from that in other parts of the body. The largest number are found in the fifth and sixth decades, with an increasing frequency in the number reported below the age of thirty.

Certain portions of the rectum seem to be peculiarly predisposed to cancer. The growth most frequently occurs either on the anterior or posterior wall of the viscus. Mondor (5) states that 65 percent of all cancers of the rectum are in the ampulla. Ten percent are below the ampulla and twenty-five percent are above the ampulla and in the lower sigmoid. These figures show that 75 percent of rectal cancers are either in the ampulla of the rectum or below it, and are consequently within reach of the palpating finger.

Heredity may or may not be considered as a predisposing factor. In young individuals who develop cancer and show a definite family history of cancer, it is probable that they may have had an inherent tendency, and that their mode of living, or other circumstances may have been such, that this tendency or predisposition has been intensified in such a way that cancer is produced. I do not believe that heredity plays any part toward the production of cancer in an individual who has lived forty or fifty years in good health.

The influence of previous disease, especially of the intestinal tract and of local lesions about the anus and rectum is surely to be considered. Among these diseases and local lesions are the chronic inflammatory conditions of colon, sigmoid, and rectum, such as colitis, sigmoiditis, proctitis, dysentery, multiple polyposis of the colon, and villous tumors in the rectum, chronic ulcerative conditions, diverticulitis, strictures, fistulae, fissures, anal polypi, hemorrhoids, and scar tissue about the anus. The lesions about the anal canal such as polypi, fissures, hemorhoids and old scars are mentioned more frequently as the site of beginning malignancy than the inflammatory lesions higher in the bowel. The occurrence of cancer in the true ulcerative colitis cases is rare which seems strange when we consider the chronicity of this malady.

The histological types of carcinoma occurring most frequently are as follows and in the order given: Adenocarcinoma, medullary carcinoma, scirrhous carcinoma, and the squamous celled carcinoma or epithelioma. Of these four the medullary carcinoma is the most malignant as it metastasises very early. The scirrhous type is slow growing and the least malignant. Epithelioma occurs at the mucocutaneous border and external to it on the skin surface. The adenocarcinoma, however, is the one most frequently seen.

The diagnosis of advanced carcinoma of the rectum is usually quite easily made. There are several quite typical signs and symptoms to be found such as pain in the rectum, the passage of blood and pus in the stool, loss of weight and strength, etc. But, unfortunately, these signs and symptoms do not occur until the disease has advanced and is usually inoperable. So, if we wish to be of the greatest service to our patients we must learn to recognize precancerous conditions and be familiar with the signs and symptoms which occur early in the development of cancer. Every doctor who sees a patient with a cancer should make an effort to elicit from that patient a description of the signs and symptoms which were present at the onset of the disease.

In our campaign for the prevention of cancer, the public should be taught more about the signs and symptoms which precede and accompany the onset of cancer. They must be taught to realize that cancer is like fire. It is most easily extinguished while small or beginning.

Harrison Cripps (6) said, "The earliest symptom of malignant, as of many other diseases of the rectum, is the consciousness of the patient that he possesses such a portion of the body. This consciousness may be only a fullness or pressure or an indescribable sensation. Or it may be a definite pain after stool, or marked tenesmus during stool, or a sensation of incomplete emptying of the rectum. Goodsall (7) has said "In almost every case one symptom appears to have been almost always present, and that is a prolonged and well marked attack of constipation supervening in those whose bowels have hitherto acted regularly every day without the aid of aperients." Any change in the frequency of stool should be noted. Constipation or diarrhea may either one be a symptom. Weakness and loss of weight begin early. Bladder irritation with a urinary frequency is often seen. Reflex gastric disturbances occur very early and gradually increase in severity. Later, (and sometimes early if the cancer should happen to be one developing on a benign lesion), the patient notices the passage of blood with the stool. The blood may be clotted and dark in color and come with a gush at the beginning of the stool or it may be bright blood coming during and after stool. The quantity and consistency of the blood will depend upon the location of the lesion. The passage of blood is either due to ulceration or to the tearing of fragile tissues. After ulceration there is pus formation and an increase of mucus due to bowel irritation. This pus and mucus mixes with the stool and in the later stages of cancer the entire stool is often made up of blood, pus and mucus. Some authors describe a characteristic odor to cancer which they say is pathognomonic. Large internal hemorrhoids are sometimes a sign of cancer, especially if they have developed rather rapidly in an elderly patient who has had a normal rectum with no bowel disturbances. It means that some obstruction to the return blood flow from the rectum has developed and this obstruction is usually malignant in nature. Another symptom is sacral backache which is worse at night or after exertion.

Since there are no laboratory tests which help in making the diagnosis we are left dependent upon a careful history and a complete physical examination which should always include a rectal examination. A rectal examination should first consist of an inspection of the anus and surrounding region, then a digital palpation of the anal ring and the ampulla of the rectum should be made. The lower portion of the sigmoid can be felt if the examiner will ask the patient to strain or bear down while he is palpating. In any case where there is bleeding or an abnormal discharge from the rectum and the digital examination is negative, an ocular examination is indicated. This is made by the use of the proctoscope or the sigmoidoscope. With these instruments you can visualize the entire inner surface of the anus and rectum and the lower four to six inches of the sigmoid. It is also possible to take specimens of tissues and discharges through these instruments for microscopical examination.

Earlier in this article, according to Mondor it was shown that 75 percent of all rectal cancers are within or below the ampulla. Therefore, 75 percent are within reach of the palpating finger and can be seen with the sigmoidoscope. In cases where the digital and proctoscopic examinations are negative and the passage of blood is seen in the stool, an X ray examination of the intestinal tract should be made. The X ray will usually locate the lesions which occur high in the sigmoid and above it in the intestines. It is the most valuable aid which we have for the location of intestinal tumors. However, it is not infallible as a scirrhous tumor which does not constrict at first or cause obstruction will not be demonstrated by the X ray. I believe that in a given case with continuous passing of blood and pus in the stool and other signs and symptoms which accompany cancer, that the surgeon is justified in making an exploratory incision for diagnostic purposes, where all other methods of examination have failed to exclude cancer.

Examination of the stool should always be made, with especial effort being made to find bits of tissue which may be present. If these are found, they should be examined microscopically by an experienced pathologist for cancer cells.

The treatment of cancer of the rectum will always be dependent upon the location and extent of the neoplasm. There are several questions to be considered in deciding upon the choice of method of treatment. In Tuttle's (8) words they are as follows: "Is there any reasonable hope of cure by extirpation? Will the patient's life and usefulness be prolonged by this operation, and will his sufferings be relieved? Or will these ends be attained in a greater measure by palliative methods such as irrigation, curettage, opium and, if necessary, an artificial anus or entero-anastomosis?" Other palliative measures which are now being extensively used are the Percy cautery, deep X ray therapy and radium. A colostomy undoubtedly gives a great deal of relief and I think is indicated in any case where the diagnosis of cancer of the rectum is certain. It serves several purposes. In the first place, in opening the abdomen to make the colostomy the surgeon is able to ascertain the extent of any growth within the rectum or sigmoid. He is able to palpate the mesenteric glands which are among the earliest to be involved. He can also palpate the liver which at times is the only organ showing metastases, due to the direct communication of the rectal and portal circulation. The colostomy also places the rectum and sigmoid at complete physiologic rest, and gives one the opportunity of thoroughly irrigating the lower bowel. And lastly, if operative procedure is undertaken the field of operation can be kept free from fecal discharges and thereby lessen the chances of infection.

If there is a possibility of removing the entire growth by excision it should be done at the earliest opportunity. If the radical excision promises a prolongation of life with comfort, it is indicated, but if there is no possibility of removing the entire growth by a radical operation and the patient's mental and physical condition will be made worse because of incontinence and lack of improvement, and the surgeon still insists upon operation, he not only makes the remainder of that patient's life more miserable but also brings disrepute upon the medical profession, for the laity is not able to judge of the merits of an operation and is therefore led by some few surgeons to look upon surgery as harmful. The patient and his friends then wish they had sought some magic cancer cure.

In all cases where life will not be prolonged and the patient made more comfortable by a radical operation, make a colostomy to relieve the rectum of its normal functions. Then apply the palliative measures, such as the Percy cautery, deep X ray therapy, or radium which will serve to relieve pain, to prevent rapid extension and thereby make the patient more comfortable.

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ABSTRACTS FROM RECENT LITERATURE

A review of 169 cases, by G. Percival Mills, Birmingham, England.
(The British Journal of Surgery. July, 1921.)

THE PROGNOSIS OF CARCINOMA MAMMAE.

This group of cases was operated on in the General Hospital, Birmingham, during the years 1910-1915 together with a small number from the private practice of Sir Gilbert Barling. Prof. Shaw Dunn passed upon the difficult pathological specimens.

Mills states that recurrences are uncommon after six years. Deaths in this series during the six year period from any cause are listed as due to cancer. Inasmuch as deaths from other causes about balance the recurrences, he feels that a six year period is an equitable basis upon which to base the standard of "cured."

All the cases were pathologically carcinoma. 158 were diagnosed clinically before the operation; 129 were hospital and 40 were private cases. Of 118 cases traced for the six year period, 47 or 39.8 percent were living and well; of 87 hospital cases, 32 or 35.5 percent were well and of 31 private cases, 15 or 48.4 percent were well.

Involvement of glands. He states that owing to divided opinion of changes in lymphatic glands which drain a cancerous area, some, believing them to be definitely precancerous. others viewing them as chronic inflammation or hyperplasia and he considering the process a reaction of endothelial cells to infection, he did not include them in the infected cases confining his group of "gland infected" to those with definite epithelial growth. Doubtful cases were classed as negative.

Gland Infected Cases. Of the 71 gland infected cases, 13 or 18.3 percent were well in six years. Of the 56 hospital cases, 7 or 12.5 percent were well in six years. Of the 15 private cases, 6 or 40 percent were well in six years.

Gland Negative Cases. Of the 54 cases, gland negative, 34 or 62.9 percent were well in six years. Of the hospital gland negative cases, there were 65.8 percent. Of the private gland negative cases, there were 56.2 percent.

Pathological Classification. The author states that distinctions such as "degree of fibrosis," "size and arrangement of cells" "leukocyte infiltration," etc., varied infinitely in different parts of one and the same tumor. He therefore grouped the cases into four classes.

Group 1. Typical carcinoma simplex. or spheroidal cell carcinoma, whatever the degree of fibrosis and whether columnar or squamous metaplasia was present or not. There were 88 cases of this type.

Group 2. Carcinoma simplex plus duct changes. A similar tumor to Class 1, containing in addition numerous dilated ducts showing definite epithelial overgrowth. There were 14 cases of this type.

Group 3. Papillary carcinoma showing definite local infiltration. There were 4 cases of this type.

Group 4. Squamoid carcinoma. this name was suggested by Prof. Shaw Dunn. It consists of very large alveoli of polygonal cells with large nuclei; the cells at periphery of the alveoli are flattened and fit closely to the stroma giving the tumor the appearance of squamous carcinoma. There are no prickle cells or cell nests. A characteristic feature is the regularity of degeneration in the center of each large alveolus resulting in large rings of tumor cells. In older parts of the tumor these rings coalesce and give rise to curious serpigenous bands of tumor cells. They are hard, slow growing tumors and usually firmly attached to the skin. There were 10 of this type.

Of 88 cases of Class 1; 29, or 32.9 percent were well in six years.

Of 14 cases of Class 2; 8 or 57.1 percent were well in six years.

Of 4 cases of Class 3; All were well in six years, 100 percent.

Of 10 cases of Class 4; 4 or 40 percent were well in six years.

(Sir Lenthal Cheatle, supported by Nicholson, believes that a majority of breast cancer growths start as an overgrowth of duct epithelium. Mills admits that Class 2 may be an early stage of the process before the original ducts are crushed out of existence by the infiltrating development.)

Clinical Enlargement of Glands. In 50 cases of clinical enlargement of glands, 30 were infected; 20 were free, representing an error of 40 percent. 16 or 32 percent were well in six years. In 23 cases in which no glands could be felt, 11 were infected and 12 free. Of 25 cases with hard axillary glands. 9 were not infected. Six or 24 percent were well in six years.

Glands Clinically Absent. Of the 19 cases in which glands were clinically absent; 9, or 46.2 percent were well in six years.

Age of Patients. Of the cases with noninfected glands that were well in six years the average age at operation was 49½ years.

Of cases with infected glands that were well in six years the average age at operation was 50 years.

Of the cases with noninfected glands that died within six years the average age at operation was 48½ years.

Of the cases with infected glands that died within six years the average age at operation was 48½ years.

(It will be noticed that age has little significance.)

Duration of Growth before Operation. 32 cases that were well in six year period; average duration of growth, was 9 months.

55 cases that died in the six year period; average duration of growth was 9 months.

Adhesion to the Skin. Of the 76 cases that were adherent to the skin, 29 or 38.1 percent were well in six years.

Of the 29 cases not adherent to the skin, 12 or 41.3 percent were alive and well in six years.

Adhesion to the Muscle. Of the 32 cases adherent to the pectoral muscle, 7 or 21.8 percent were alive in six years.

Of 66 cases not adherent to the muscle 34 or 51.5 percent were alive and well in six years.

(It is noticeable that adherence to the muscle shows a marked difference in the end results as compared with adherence to the skin.)

Obesity. Of the 18 obese patients, 2 or 11.1 percent were well in the six year period.

Of the 9 normal weight patients 6 or 66.6 percent were well in the six years.

Of the 5 spare patients, 1 or 20 percent were well in six years.

An analysis of the foregoing leads one to conclude that while clinical considerations are valuable for a provisional prognosis, the final prognosis can only be made with any degree of certainty after a microscopical examination.

Nature of Operations Performed:

A. Cases with noninfected glands;
  1. Sampson-Hadley Technique.
     16 cases; 11 or 68.7 percent were well in six years.
  2. Halstead's Technique;
     23 cases, 14 or 60.8 percent were well in six years.
  3. Imperfect Operation;
     14 cases, 9 or 64.3 percent were well in six years.

B. Cases with infected glands;
  1. Sampson-Handley Technique.
     21 cases, 4 or 19 percent were well in six years.
  2. Halstead's Technique.
     33 cases, 6 or 18.2 percent were well in six years.
  3. Imperfect Operation.
     5 cases, 1 or 20 percent were well in six years.

Mills summarizes the reports as follows:

1. Taking a six year period as a standard cure, a representative series of cases operated upon by various surgeons, the results are:
   a. All cases — 39.8 percent cured.
   b. Gland infected cases — 18.3 percent cured.
   c. Gland free cases — 62.7 percent cured.
2. Prognosis is worst for the carcinoma simplex (32.9 percent), better for squamoid (40 percent), better still for the carcinoma simplex with over growth of duct epithelium, (57.1) and very good for papillary carcinoma (100 percent).
3. Clinical enlargement of axillary glands even if hard is no proof of their pathological involvement, nor is absence of clinical enlargement proof of freedom from involvement.
4. Age at operation, duration of growth, and adhesion to the skin have little effect on the prognosis.
5. Adhesion to the muscle is a bad sign in the prognosis.
6. The prognosis is best in individuals of normal weight, and very bad in the obese.
7. There is little or no difference in the results following the Sampson-Handley and Halstead Technique, while occasionally advanced carcinoma does apparently well after an imperfect operation.

The abstractor believes that this series of cases furnishes material for serious thinking, when coupled with Cheatle's observation (British Journal of Surgery, Jan., 1921) as follows. "If I might be allowed to state in what direction I would like to work, had I the knowledge of biochemical processes, and the time and ability to carry them out. I would study the autolytic products of injured epithelial cells to attempt to determine whether they could or could not, in whole or in part, influence ordered or disordered cell multiplication. It seems to me an investigation upon which great issues might depend. Many of these cancer bearing ducts to which I have referred show no signs of a surrounding inflammatory cell fauna. Therefore I would bear in mind the possibility that irritation that is capable of inducing epithelial cells to proliferate might be too slight to induce inflammatory affection." Certainly the last word has not been written upon the cause and behavior of malignancy, and the surgeon of tomorrow may be compelled to renounce many of his present conclusions.

—Czar C. Johnson.

CANCER OF THE SKIN.

Internat. Journ. of Surg., Feb., 1922, J. L. Kendall: Primary epitheliomata are frequent on the skin and usually found on the face and the lips. The superficial variety starts from small hard, yellowish nodules, such as a wart or mole or a senile keratosis. The ulcers have undermined, irregular edges with an uneven base. Metastasis to the regional lymph-glands occur slowly. Secondary cancer of the skin develops sometimes in the scars after an excision of the breast and may coalesce to large areas forming the so-called cancer en cuirasse. Precancerous dermatoses like chronic sunburns or from any other continued irritation predispose to skin cancer.

Dermat. Zeitschr, Jan., 1922, E. Langer: It is generally admitted that malignant tumors may arise from chronic irritation. Carcinoma or sarcoma have been known to develop on old foci of lupus, in the scars of old leg ulcers or in syphilitic scars. The effect of irritation of the skin in chimney sweeps, workers in paraffin and aniline, causing malignant tumors, is well known. In several cases cancer has developed n the scars of old gun-shot wounds. However, there is still a doubt whether a single severe trauma can have such an effect. This question was especially of importance during the late war. The author cites a case of a man shot in the hand, where about a year later a large carcinoma developed, finally necessitating a complete removal of the skin followed by a plastic operation. The man had had previously a pigmented wart on the place where he received the wound and this possibly may have excited to proliferation by the trauma.

Amer. Journal Roentgenol, April, 1922, Chas. F. Bowen: Every case of superficial cancer is curable, while it is still localized. Failure of continuing treatment long enough is frequently the cause of unsatisfactory results. Bowen considers the combination of Roentgen rays, radium and electric coagulation, remedies of the greatest possibilities. He gives concentrated doses, as much as 50 ma. minutes, over an area slightly larger than the lesion. This is preceded by the electric coagulation and followed with the radium, all three agents being used at one sitting. The patient is then instructed to return in a month by which time he is usually cured. (This appears very much like a prescription to kill or cure. The above indicated dosage of unfiltered X ray is sufficient to cause a deep burn. Adding to it electro-coagulation and radium exposures appear to be unnecessarily excessive measures).

Brit. Journ. Derm. & Syph., May, 1922, J. Darier. The present time interest in cancer is mainly in its etiology, relative malignancy and response to radiation. Three types of skin cancer are now recognized, of which the first two are well known, but the third is comparatively new. (1) Princkle-cell cancer is common (50%) and the most malignant. It is found frequently on the lip. It may begin as a wart or on the mucous membrane as leucoplakia. The progress is rapid, the glands become involved and visceral metastasis is possible. The disease is very fatal in from eighteen months to three years. This type is very resistant to the X rays. (2) Basal-cell epithelioma is about equally common (30 to 40%). It develops usually on the face of old people. It may be very superficial and granulating, or be a penetrating ulcer. Its development is very slow, continuing from twelve to thirty years, has a tendency to recur and never affects the glands or forms metastasis. It yields quickly to radiation. The third type Darier, calls a spinobasal cell cancer. It occurs in from 10 to 15 per cent. It is found only on the face and usually on the nose. Clinically it is difficult to diagnose from the basal-cell type, but it is more rapid in development, invades the glands and resists radiotherapy. As regards treatment of skin cancer, Darier advises complete surgical excision for operable spindle-cell cancers, ordinary radiation for the basal-cell growths and intensive radiation or radio-puncture for nonoperable spindle-cell and for spinal-basal cell carcinoma. (Every dermatologist remembers cases of apparently superficial epitheliomata which stubbornly refused to yield to the usual treatments. As the excision of a section for biological examination is contra-indicated, it was impossible to account for the above fact. Darier's explanation and new classification appears therefore reasonable and timely).

—Alfred Schalek.

THE QUESTION OF CANCER OF THE STOMACH BEING ENGRAFTED ON AN OLD ULCER BASE.

The question of cancer of the stomach being ingrafted on an old ulcer base has been the subject of considerable interest in recent literature. S. P. Miller and T. G. Beebe, in the American Journal of Medical Sciences, December, 1921; CLXII No. 6, No. 597, Page 62, have analyzed 182 cases of cancer of the stomach, with special reference to the instance of preexisting ulcer, and have found a history of preexisting ulcer in only 17%. The Rochester statistics of three or four years ago, showed a much larger percentage, but their more recent experience has shown that cancer of the stomach, on the basis of preexisting ulcer, is not common.

Sir James Mackenzie, in a recent article on the heart, makes the statement that clinicians should more carefully study symptoms; as symptoms often precede for a considerable period of time, any physical findings in a given case. This applies not only to the heart, but to early gastric cancer, and we plead for a more careful analysis of symptoms in gastric cases in the hope that such a study of symptoms will lead to an early diagnosis.

Taylor and Miller state that, in gastric cancers, the reference of epigastric pain to the back occured in 29%; and of these, with reference of pain to the back, 80% had involvement of the pylorus. Constipation occurred in 82%; anorexia in 84%, and gaseous eructations in 89%. Vomiting occurred in 70%. Only three times was hematemesis found, and two of these were in the ulcer-cancer cases. Roentgen study gave a positive diagnosis in 96.8% of these cases. This shows the value of a careful X ray examination in suspected cancer of the stomach. Taylor and Miller, as to age, find that 85.7% of their cases were between the ages of 40 and 69; 7.7% between the ages of 30 and 39, and 5.5% between the ages of 70 and 89. They found no case of cancer under the age of 30, and only a small percentage up to the age of 40. So that all cases over 40, with gastric complaints, should be considered suspicious of cancer until proven otherwise. Being suspicious always sharpens our wits.

It was hoped that blood sugar tolerance, as an aid in the diagnosis of gastrointentinal cancer, would be of some value; but J. Friedenwald, after an extensive study of the blood sugar tolerance, concluded that the tolerence test cannot in any way be considered specific for carcinoma, but when taken into consideration with other clinical evidence it may serve as a valuable aid to diagnosis in obscure cases of cancer of the gastrointestinal tract.

—R. W. Bliss.

IS CANCER MORTALITY INCREASING?

"To determine whether or not there is a real increase in cancer mortality, we must compare cancer death rates for the same ages, since cancer is an old-age disease." Accordingly Strong (Jour. Cancer Research, 1921, 6,251) quotes some statistics as compiled from the records of several large insurance companies. The experience of two of these companies covering the eleven year period from 1911 to 1921 inclusive, indicates, taking the figures at their face value, that for ages below sixty-five there is either a fluctuating or a slightly decreasing in cancer mortality, while for the ages sixty-five and over, there is probably on the whole, some increase. Meanwhile the statistics of the United States Registration Area show a continuous increase in cancer deaths. These are population statistics, however, and are not analyzed as to ages. As these deductions are from statistics, one should not forget, before accepting them as final results, that certain circumstances and considerations might modify them. Certainly there has been a gradual increase in correctness of diagnosis, so that in the past, many deaths attributed to old age and other diseases, should properly have been ascribed to cancer, with the result that if there were a really stationary cancer mortality, it would appear to be increasing considerably. The author believes "that we cannot now determine whether the cancer mortality is slightly increasing, practically stationary or slightly decreasing, but that we can be sure it is not greatly increasing." He also says "that such a conclusion does not lessen at all the seriousness of the cancer problem."

—R. W. Bliss.

CARCINOMA OF THE LUNG.

Moses Barron, M. D. Archives of Surgery, May, 1922. Barron's article is a comprehensive review of the literature on this interesting subject to which he adds thirteen cases.

Bayle is credited with having first recognized the condition in 1810. Many cases have been reported since then, though it is obvious that only those in which autopsies were held are of value from a statistical point of view. Primary carcinoma of the lungs is found in from 0.05 per cent to 0.9 per cent of all autopsies performed. Briese in 12,971 autopsies found 1,287 cases of carcinoma. The order of frequency in 24 principal organs of the body is as follows. Stomach first, with 458 cases; uterus second, with 187 cases; lungs and bronchi sixth, with 60 cases; and the breast seventh, with 40 cases.

It is interesting to note that primary carcinoma occurs more frequent in the lungs than in the breast. Kaufmann claims that in all primary carcinoma of the body 1.76 per cent occur in the lungs.

Etiology: The determination of the etiology is as difficult in the lungs as elsewhere in the body. Trauma plays a lesser role here because of the bony cage protecting the lungs. Perhaps the chief etiological factors are inflammatory conditions and of these tuberculosis is most important. Kaufmann claims that carcinoma develops in the walls of the bronchiectatic cavities as well as those of tuberculosis; however the bronchiectasis may be secondary to the neoplasm.

Barron thinks that the influenza epidemic of 1918-1919, is responsible for the increased number of recognized cases since that date. The age of greatest incidence is the sixth decade of life. Three cases occur in the male to one in female.

Pathology: The primary focus is occasionally so small that only the metastases produce symptoms. The right lung is more frequently involved than the left and the upper lobe is more frequently affected than the lower.

Histologically, carcinoma is classified in several groups.

1. Cylinder cell carcinoma (a) Adenocarcinoma (b) Carcinoma simplex (c) Scirrhous carcinoma (d) Alveolae carcinoma (e) Medullary carcinoma (f) Colloid or gelatinous carcinoma.
2. Squamous-cell carcinoma (cancroid).
3. Mixed types.

Metastases are frequent and numerous. The order of frequency of the involved organs are as follows: Lymph nodes, liver, lungs, kidneys, suprarenals, brain and dura mater and bones (especially vertebrae).

Symptomatology: There are no pathognomonic symptoms, though there are groups of symptoms which are fairly common.

1. Cough: It is very annoying at first being dry, but later rasping and productive.

2. Pain is commonly present. At times only a sense of discomfort or oppression in the chest. In some cases there is unilateral intercostal neuralgia or pain in one shoulder or arm. The onset is slow thus differing from the ordinary neuralgias.

3. Dyspnea is a late symptom and at times may go on to a condition of orthopnea.

4. Weakness: In some there is a general sense of weakness which begins quite early.

5. Cachexia is usually not marked until the late stages of the disease. Loss of weight is only mild or moderate.

6. Fever is not infrequent because of the inflammatory complications so often present. Some patients even have chills and night sweats.

Of the physical findings only a few need mentioning. If effusion is present there is a flatness of the chest. Prominent findings is "cornage" (a peculiar type of tubular breathing elicited by auscultation). "Cornage" with bloody sputum is very significant.

Laboratory findings: Sputa tenacious and may be blood streaked. History of a thin mucosanguinous sputum extending over a period of weeks without much fever, chills or night sweats is very suggestive of a bronchial ulceration from a neoplastic growth.

Treatment: The frequent location of the growth at the hilum of the lung with its close relationship to the mediastinal vessels and heart, prevents adequate surgical interference.

Roentgen ray and radium therapy have proved of little or no value.

—Max Emmert.

NEBRASKA COMPENSATION LAW.

State of Nebraska
Department of Labor and Compensation

Lincoln, Sept. 20, 1922.

Dear Sir:

The Compensation Department comes so close to the medical profession that we request assistance in getting the profession of the state to cooperate with us in securing the most efficient service by reporting promptly to the insurance companies, all treatment rendered injured workers under the compensation law.

We also wish to impress on the profession the importance of their adhering to the Fee Schedule of the Compensation Department to the end that the amendment providing for unlimited medical treatment to injured workers will prove the success this department hoped for.

The medical and hospital expense under the Nebraska Compensation Law since its adoption, each year, has been as follows:

1915	$ 25,422.89
1916	49,118.87
1917	51,827.22
1918	39,231.99
1919	90,162.88
1920	137,432.14
1921	138,736.99
1922 (to July 1)	86,877.42

	No. of Accidents	Average medical expense per accident
1915	4,082	$ 6.22
1916	10,822	4.53
1917	13,293	3.90
1918	7,066	5.55
1919	11,273	8.00
1920	13,676	10.05
1921	11,356	12.20
1922 (to July 1)	5,850	14.84

Surroundings States

Following is the amount of money paid out in the states surrounding Nebraska for medical and hospital expense during 1921:

South Dakota	$41,125.12
Wyoming	33,446.52
Iowa	78,386.49

Kansas keeps no record of medical expense.

Colorado includes compensation, medical and hospital expense under one head.

Frank A. Kennedy,
Secretary of Labor and Compensation Commissioner.

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CANCER WEEK.

It will be recalled that in the month of November of last year the medical profession of Nebraska joined with the other states of the union in promoting a campaign for the control of cancer. Again the call comes and the response will be no less hearty than in the preceding year. In order to obtain lasting results we must come again and again before the public with the message. And we ask what sort of a message are we to take to the public? It shall be a message of hope to the end that confidence in the curability of cancer shall be inspired if only the case is seen in its earliest stages. It shall be a message that given in simple language that will tell the story of the appalling frequency of this dread disease and how its ravages may be stayed by knowledge of the earliest manifestations of the disease. It shall be a message that will direct suspecting cases to their family physicians and away from charlatans and quacks.

Such a message was carried to a very large portion of our communities in the state last year and we have evidence in abundance that much good was accomplished. Let us go on with the good work to the end that the greatest scourge known to the human race may be checked as have been many of the infectious and contagious diseases.

The call will come to every member of our State Association to join in this campaign. Let each and every one do his bit.

In addition to talks before lay audiences and medical societies as was done last year, two new features will be inaugurated this year. Messages will be broadcasted by wireless and four minute talks given before audiences in the movies. If these new features are adopted widely it is estimated that not less than a million people in the state of Nebraska will receive the message in the week of Nov. 12 to 18 which is to be designated as "Cancer Week."

—Palmer Findley.

STATUS OF THE TREATMENT OF CANCER WITH THE X RAY TODAY.

The application of the X ray to the treatment of cancer has been in use for a good many years. There has been gradual progress made right along and great efforts are being made all over the world to arrive at a standardization of dosage, but two difficulties are confronting us, viz. the physical and biological activities of the ray on the body together with the overwhelming significance of scattered radiation. Holznecht speaks of investigating the biological dosage and its formulation. The conception "destructive dose", "skin unit dose", "paralyzing dose," "stimulating dose", "carcinoma dose", "ovarian dose". "tuberculosis dose", etc., have all been found wanting for practical purposes.

While as yet we have arrived at no definite solution of the actual dosage, yet the consensus of opinion of the leading Roentgenologists is very encouraging to the immediate reaction on the disease. There is prompt improvement, pain is usually relieved, bloody and purulent discharges lessen or disappear, and the general condition of the patient is improved in a considerable proportion of cases. We have no right to talk of permanent results, yet feel justified in going earnestly ahead in this work. In Germany, where they have used heavy voltage and competent filters, they report from thirty to thirty-five percent apparent cures. While this is encouraging, yet it will be a number of years before we will be able to definitely give exact figures as to the ultimate outcome of patients treated with the X ray.

Retrogression of the cancer is not due

solely to the immediate action of the X ray but it is to be considered as a performance of the whole organism which has been attacked by cancer and this performance is being incited by the irradiation. This performance is to be ascribed to the healthy tissue near the cancer, to the blood and probably the endocrine glands including the spleen. The best results are only obtainable if the method of irradiation is adjusted to the particular conditions of each individual case. Overdose is to be considered as especially dangerous because it weakens the local as well as the general defensive forces of the body.

—A. P. Overgaard.

BONE CANCER.

Carcinoma of bone is always secondary to primary disease in an epitheleal organ, and may, take place by metastasis, or by direct extension. Examples of the latter process are invasion of the jaws from cancer of the lips, mouth or face; of the ribs from breast cancer; of the skull from cancer of the scalp; of the tibia from epithelial degeneration of scars and ulcers following osteomyelitis or compound fractures, plus the subsequent traumas and irritations incident to their exposed position. The examples mentioned are the most common ones of direct extension of cancer to the bone, but, it can occur anywhere that direct extension is possible. These forms of bone cancer, therefore, are rarely seen, except in the later age periods.

Metastatic bone cancer which is carried from the primary disease by the blood stream, enters through the nutrient artery, consequently it is apt to lodge in the shafts of the long bones, thus differing from sarcoma which most often involves the extremities of the bones.

Metastasis from breast cancer is relatively common, as shown by systematic X ray observations at the Mayo Clinic. Of a series of late recurrent cases, in which all parts of the skeleton were examined, foci were found in eight per cent.

Metastastic cancer of bone which is usually multiple, may be considered a terminal stage, though it may occur so many months before the end, that a very prolonged and distressing stage prevails. The most notable examples of this are cancer of the spine, pelvis or hips. Spontaneous fractures may occur in any of the long bones, and is often the first obvious manifestation of secondary cancer. More or less pain of a persistant character, however usually precedes this calamity. This pain in a person who has had cancer should suggest the use of the X ray to determine the incidence of cancer in the bony parts under complaint.

A discussion of the differential findings by X ray in cancer and sarcoma will not be undertaken. Sarcoma appears most often in the second period of life. Carcinoma is essentially a disease of the later periods of life.

The radical treatment of metastatic carcinoma of bone is obviously so unfavorable that it cannot be considered except possibly in most exceptional cases, involving the extremities without demonstrable disease elsewhere.

There are some cases of bone cancer from extension which are amenable to successful excision and ultimate cure. Earlier radical exterpations, however, furnish the better results.

The X ray and radium have not demonstrated their curative value beyond mere palliation of pain, and possible retardation of growth in some cases.

—J. P. Lord.

CARCINOMA OF THE PROSTATE.

A review of the urological literature of the past year shows two excellent papers on carcinoma of the prostate that are particularly interesting because they go rather extensively into the use of radium in the treatment of this malignant disease.

1. "Carcinoma of the Prostate" by Dr. B. S. Barringer of New York, from the department of Urology of Memorial Hospital, published in "Surgery, Gynecology & Obstetrics" for February, 1922.

Dr. Barringer's paper is based on a series of 145 cases. He noted that 142 of these cases already showed extension of the disease beyond the prostate at the time of first examination. Many of these cases were examined early after the onset of symptoms. Therefore, his plea for routine examination of all prostates in men past fifty, irrespective of the appearance of symptoms, as the only rational method whereby we could expect to get these cases early, is certainly a very timely and important suggestion.

Dr. Barringer gives in detail the technique of radium treatment of prostatic carcinoma, which he has done so much to perfect. Most of his cases received radium treatment. In some cases where residual urine was marked he resorted to the use of the Young punch or did a partial supra-pubic prostatectomy, with a long ronguer forceps biting out the lower part of the bladder neck.

Dr. Barringer's conclusion that the results of radium treatment of carcinoma of the prostate are superior to operative removal both in causing regression of the disease and coping with urinary retention will undoubtedly serve to make others give radium a thorough trial in order that we may fully determine its value.

2. "Treatment of Malignant Disease of the Prostate and Bladder" by Dr. J. T. Geraghty of Baltimore, from "The Brady, Urological Institute", published in "The Journal of Urology", for January, 1922.

Dr. Geraghty first calls attention to the fact that in a series of 450 cases of carcinoma of the prostate registered in the urological department of Johns Hopkins hospital the past twenty years, 75% of them were associated with a hypertrophy of the prostate.

He notes that surgery alone is hopeless in 95% of cases as far as complete extirpation of the malignant disease is concerned. With that in mind, he has since 1915 used radium either alone or in combination with surgery in 150 cases. Radium was at first used only through the urethra and rectum against the prostate and seminal vesicles. Later he adopted Barringer's method of inserting needles of radium through the perineum into the prostate.

The failure of radium to relieve obstruction, when there is complete retention or a large residual urine, in a large percent of cases was especially noted. This was thought to be due to the fact that carcinoma of the prostate is associated with hypertrophy in a large percent of cases and radium has little or no effect on the adenomatous lobes.

In those cases he employed a modified perineal prostatectomy as advocated by Young, the technique of which is given with excellent illustrations. In his summary he states that in about 50% of cases operative procedures will be unnecessary as little or no obstruction to urination is present. Radium in these cases he believes will probably prove extremely valuable, not so much for the cure of cancer as in preventing the development of urinary obstruction later.

Dr. Geraghty concludes that radium has a distinct place as a valuable adjunct in the treatment of cancer of the prostate but does not replace operative procedures. The second part of the paper has to do with malignant bladder tumors and the use of radium in their treatment.

Dr. Geraghty's paper is an excellent one and well worth careful reading by one interested in the subject.

—Charles McMartin.

THE LIMITATIONS OF RADIUM.

Human knowledge is gained in pain and travail. It takes ten years for a truth in medicine to be accepted, and it takes ten years and more for an exploited error to perish. Radium in the treatment of cancer has passed the decade mark in general experimentation. Its uses and its limitations now stand for appraisement.

Radium in its mystery, hurling from its swirling cosmos the forces of primordial matter, has in ten years ceased to be a fetish capable of magic power. Not merely because of its costliness should our cold appraised of its real value be prejudiced. Then, shall we shrink from this tube of mysterious and costly dynamite as from a shattered idol because it will not work what we hoped, or rather shall we define the limitation and bend this agent to its real field of usefulness in the control of cancer? Better this than to discard it.

The outstanding features of radium are:

1st—That because of its cost and mystery it works a certain power to draw out of hiding cancer cases and precancerous lesions.

2nd—It throws a ray of short amplitude and powerful penetration, greater indeed than any man-made machine, yet this advantage over the X ray is more apparent than real since the therapeutic ray from the Coolidge tube will travel 20 inches through flesh or through the thickness of the body.

3rd—Radium in its destructive action on tissue is more local and intensive in effect than is the X ray.

We find in fact that as compared with the X ray, the radium ray is not susceptible of the same direction and dosage as the ray generated from the high power modern therapeutic machine. In cost the ray from radium is ten times as costly in capital invested for equal dosage as the X ray, thus placing an overhead one thousand percent greater on the patient. Furthermore, the radium ray is in no wise as effectual to shrink deep metastases as is the generated X ray, for the radium ray of deep penetration that will destroy a deep metastasis will also destroy the patient. Radium therefore finds its limitations of use in locally destroying superficial cancer, competing therein with other agents.

In the great mass of cancer, namely that of the gastrointestinal tract, radium may be employed to advantage only on the inlet and outlet of that tract, and then only when the surgeon's knife falters. In the treatment of breast cancer it has no legitimate place, save as an escharotic on fungating masses. On cancer of the cervix uteri it finds legitimate employment only to replace or to follow the knife or the actual cautery and to supplement the irradiation by controllably generated X ray directed through the abdominal wall.

A MESSAGE OF HOPE

CANCER is a curable disease. CANCER is neither contagious nor hereditary. Last year 1068 people died of this disease in Nebraska. Many of them could have been cured had they gone to a reputable doctor IMMEDIATELY. "Immediately" means as soon as symptoms are noticed.

I. H. DILLON,
Chief, Bureau of Health
Nebraska.

Within the following limits radium finds a proper field of usefulness:

It is curative like other destructive agents on superficial cancer; thus in the destruction of basal cell growths it works more controllably and with less pain than does arsenic paste, and kills equally well as does freezing, X ray and other local destructive agents.

To centrally irradiate a cancer mass the radium needle presents a convenient focus, particularly effective for shrinking tumors of mesodermic origin. But as a general irradiating agent in the control of cancer radium has been surpassed the same as have the natural by the artificial dyes, by man made product. Radium has yielded to the X ray and gone the way of red cochineal and blue indigo.

In summary, radium cures superficial and local cancer at a time when it can also be completely excised and thus cured by the surgeon's knife. In the treatment of deep cancer and cancer with metastasis, radium does not cure, but is palliative only, and thus employed as a general irradiating agent, it has been surpassed by the high power X ray tube.

—Karl Connell.

THE SOCIETIES.

The first semimonthly meeting of the Lancaster County Medical Society was held at the Orthopedic Hospital, Lincoln, on the evening of Oct. 7. Dr. Roscoe L. Smith read a paper, "Report of Results During the Past Year With High Voltage Roentgen Ray Therapy on Malignant Lesions"; Dr. M. J. Breuer, "The Accurate Management of Diabetes."

The **Hall County Medical Society** has an innovation in a published program and calendar for the entire year's work. At the meeting of Sept. 28, Dr. H. B. Boyden read a paper on, "The Acute Abdomen"; Dr. J. V. Reilly, "The Interpretation of Fever in Children". This meeting was well attended, the papers were well received and discussed, and the officers are looking forward to a very successful season.

The **Eighth Councilor District and Holt County Medical Society** held a very successful meeting at Atkinson, October 11. Dr. J. H. Regan, Chadron, was elected president and Dr. Charles F. Ulrich, Valentine, secretary-treasurer. The Atkinson Commercial Club tendered a midday luncheon. Following is the program:

"The Profession Today," Dr. G. O. Remy, Ainsworth; "More Argument on Bad Backs", Dr. M. F. Finley, O'Neill; "Heredity in Disease", Dr. B. F. Richards, Crawford; "Fractures at Elbow, with X ray Slides", Dr. J. H. Regan, Chadron; "Suppurative Diseases of Maxillary Antrum", Dr. L. E. Sleeper, Crawford; "Some Obstacles of the Country Surgeon", Dr. B. V. McDermott, Stuart; "A Case Record of Interest", Dr. C. F. Ulrich, Valentine.

The **Ninth Councilor District Medical Society** meeting held at the Kearney Country club, Sept. 12, was attended by 45 doctors. Dr. A. E. Wanek, Loup City opened the meeting with the President's address. "Induction of Labor at Term," was presented by Dr. W. W. Arrasmith, Grand Island; "The Treatment of Chronic Empyema", was read by Dr. B. R. McGrath, Grand Island, and Dr. Edwin Davis, Omaha, read a paper on, "Perineal and Suprapubic Prostatectomy". A chicken dinner was a diversion of some interest.

The joint meeting of the **Fourth Councilor District and Elkhorn Valley Medical Societies** was held at the Norfolk Country Club pavilion October 3. Sixty doctors attended. The seven papers on the program were read and discussed. The question of fusion of the two societies was turned over to a joint committee, consisting of Dr. Morris Nielsen Blair; A. G. Lueschen, Columbus, and H. N. Morrow, Fremont, for the Elkhorn Valley society and

Drs. P. H. Salter, Norfolk; F. A. Long, Madison and John Buis, Pender for the Fourth Councilor District society.

The Republcan Valley and Tenth Councilor District Medical Society held a meeting at Hastings, October 26. Officers of the State Medical association and other noted members of the profession were present. An interesting program was carried out. The Adams County Medical Society entertained the members and their ladies.

A farewell reception was given to Dr. Sherman Jones and wife Monday evening, Aug. 28 by the members of the Adams County Medical Society at the Sodateria. Those present were: Dr. Sherman Jones and wife, Dr. C. B. Calbreath and wife, Dr. Martin, Dr. R. G. Cressman and wife, Dr. E. B. Hamel and wife, Dr. Pinney, Dr. Summer, Dr. McPherson and Dr. W. T. Carson and wife. Dr. Jones and wife will leave for Europe in a few days where the doctor expects to do special laboratory work. They will be gone for a year or more. Dr. Jones has been actively engaged in the practice of medicine for over forty years, and the last fifteen years in Hastings, Neb.

The Nebraska University Medical Alumni Association at the annual meeting in Omaha in September elected Dr. W. H. Taylor, Omaha, president; Dr. S. A. Preston, Fremont, vice president, and Dr. George Potter, Omaha, was reelected secretary-treasurer. About forty alumni attended the meeting which is reported to have been one of unusual interest and profit.

The Third Councilor District Medical Society held its meeting at Table Rock, October 12, under the direction of Dr. C. P. Fordyce, recently appointed Councilor. The program which follows speaks well for the new appointee:

"Therapy of Pulmonary Tuberculosis", Dr. C. D. Barnes, Tecumseh; "Hay Fever," Dr. J. C. Gillispie, Falls City; "Endocarditis and Its Sequels", Dr. C. A. Lutgen, Auburn; "Local Anesthesia in General Surgery", Dr. A. I. McKinnon, Lincoln; "Medical Practice as a Business", Dr. W. R. Boyer, Pawnee City; "Radiant Energy Therapy", Dr. R. W. Fouts, Omaha; "Specific Hypersensitiveness as a Common Cause of Illness". Dr. W. W. Duke, Kansas City, Mo.; "Radical Treatment of Hand Infections", Dr. Harry Everett, Lincoln; "Hyperthyroidism", Dr. Adolph Sachs, Omaha; "Cardio-Vascular Renal Disease", Dr. J. C. Waddell, Beatrice.

FOR SALE — A BARGAIN.

A doctor's office, complete, furniture, library, instruments—very cheap. Must sell on account of rapidly failing health, at less than half cost. Best location on O street in Lincoln. Sale will be a distinct sacrifice. Call on or address Dr. J. H. Long, 1034 O Street, Lincoln, Neb.

NOTES ABOUT THE DOCTOR.

Palmer has a new doctor by the name of Jaenike.

Dr. and Mrs. C. A. Hull, Omaha, have returned from an eastern trip.

Dr. P. T. Campbell, formerly of Salt Lake City, has located at Ralston.

Hodgens Smith, Pawnee City, an aviator of some note, has decided to study medicine.

Dr. F. E. Coulter, for many years an Omaha neurologist, has moved to Santa Anna, California.

Major Homer L. Conner, medical corps, stationed at Omaha for some time has been ordered to Hawaii.

Dr. C. B. Baer, recently an interne at the Methodist hospital, Omaha, a Stanton boy, has located at Memphis, this state.

Dr. H. R. Mulligan, a recent graduate of the University of Nebraska has located in Hastings and has an office in the Kipp Bldg.

Dr. John McCoy, a former practitioner of Alliance, after more than a year's absence, has again opened an office in the above city.

Dr. H. W. Orr, Lincoln, has been appointed Colonel of the 110th, U. S. National guard medical regiment, being organized in this state by Adjutant General Paul.

Dr. H. E. Mantor, formerly Councilor of his district and resident of Sidney, has moved to Denver to specialize in X ray work. He will be succeeded at Sidney by his brother, Dr. H. L. Mantor, formerly of Lodge Pole.

HYMENEAL.

Dr. E. C. Lynch, North Platte, and Miss Winona Ingle, Lincoln, were married at Grand Island, Sept. 19th.

Dr. Earl Sage and Miss Blanche Duel, Omaha were married October 4.

Dr. Karl Connell, owner of the Presbyterian hospital, Omaha and Miss Frances Hovey Roof of Lakewood, N. J., were married at Lincoln the latter part of September.

NECROLOGICAL.

The death of Dr. F. J. Greer at Wolbach is announced. Dr. Greer built the first drug store in York county and was a practicing physician in York county for a number of years during the pioneer age.

Dr. W. T. Putt, Grand Island, Eclectic Medical College, Cincinnati, 1874, died recently, aged 70. He had been house physician at the Soldier's Home for eight years, and more recently secretary and medical director at the Y. M. C. A.

Dr. L. E. Parks, one of the pioneer physicians of Boone county died at Bussey. October 4.

BOOKS RECEIVED.

The Elements of Scientific Psychology. By Knight Dunlap. Cloth. Price $3.50 net. Pp. 368 with illustrations. St. Louis: C. V. Mosby Company. 1922.

Physical Diagnosis. By W. D. Rose, M. D. Cloth. Price $8.50 net. Pp. 755 with 319 illustrations. Third Edition. St. Louis: C. V. Mosby Company. 1922.

Physiology and Biochemistry in Modern Medicine. By J. J. R. MacLeod, M. B. Cloth. Price $11.00. Pp. 992 with 243 illustrations. Fourth Edition. St. Louis: C. V. Mosby Company. 1922.

OALR NUMBER

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THE TREATMENT OF ACCESSORY NASAL SINUS DISEASE IN CHILDREN.*

H. B. Lemere, M. D., Omaha, Neb.

Schaffers(1) measurements in a series of specimens show that the antrum is by far the largest cavity at birth and it retains this relative size in regard to the other nasal sinuses throughout life. It has been in my experience much more frequently the seat of infection than have the other nasal sinuses.

Attention has been drawn to infection of the nasal sinuses in children by one or several of the following symptoms: Profuse nasal or post nasal discharge, cough, persistent mouth breathing after tonsil and adenoid removal(I), pale face and lips, running ear, otitis externa, mastoiditis(II), poor appetite, recurring bronchitis(II), pneumonia and asthma(III), pleuritis, headaches, loss of appetite, mental hebitude(III), choreea and nervousness, arthritis(III), chronic pharyngitis(III), facial acne, keratitis conjunctivitis(V), both phylectenular and interstitial, swelling of the cervical glands.

A truly imposing list and still our knowledge of this condition is very recent. The suspicion aroused by one or more of the above symptoms should be verified by X ray or puncture and washing using culture media to demonstrate bacterial growth.

I have considered the symptomatology at greater length and with further references in a previous paper, "The Diagnosis of Sinus Disease in Children." This paper was delivered April 11th before the Omaha Douglas County Medical Society.

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*Read before the Nebraska State Medical Association, Omaha, April 1922.

I. See Case Report 1.
II. As a routine I have X rayed the sinuses in cases of mastoiditis and have found an antrum condition usually present.
III. Case 5.
IV. Case 2.
V. In syphilitic children suffering from interstitial keratitis, I have found marked opacity of the antra on X ray examination.

The laity and indeed few pediatrists have been accustomed to connect these conditions with nasal pathology. These little patients will therefore first be seen by either the family physician or the pediatrist and upon their ability to recognize the associated symptoms, depends our progress in the study of these infections. If the pediatrist were to study a series of those cases with the rhinologist, he would be surprised to find how frequently sinus diseases exists in infants and young children. This frequency is accounted for mainly by the fact that any severe attack of any of the exanthemata is liable to affect the sinuses⁽²⁾ and on clearing up to leave behind a chronic infection. The common colds are also frequently a factor in producing sinus infection. Many of these sinus infections left behind are mild in character and their local symptoms are somewhat obscure. The connection of these mild infections with the pronounced general symptoms they produce can be proven frequently by the effect of very simple treatment in the removal of many somewhat serious conditions of ill health.

The antrums are so situated that no efficient medication can be carried to their linings without first enlarging the natural openings into the nose or making artificial ones, in other words, without operation. Children, however, show a tendency toward repair which can easily be taken advantage of in the treatment of sinus disease. It is my experience that an established antrum disease in an adult is never cured without operation. By constant care and attention, its osteum may be kept free and it may drain freely but it will always remain a latent or active focus of infection according to the absorption of its toxines and the resistance of the body to them. I have formed this opinion after a variety of methods of treatment extending over many years. The recognition of antrum disease in children is so recent that no such observations are possible. While in the adult the operation has few contraindications, in a child there are several reasons why we hesitate to operate. (1) The child's nose is in a formative period and any interference with the nasal structures, unless strongly indicated, is undesirable. (2) The making of an opening into the sinus has two purposes, one is drainage and the other, which is at least equal in importance, is the after treatment in making it possible to treat with mechanical cleansing and with medicines the lining membrane of the antrum directly. This after treatment, which is absolutely essential in many cases is extremely difficult to accomplish in children with any degree of thoroughness. As Dean states unless the patient is hospitalized for several weeks or months. In many cases, this is impossible and in the milder cases it is undesirable and operation is therefore contraindicated. (3) The most efficient means of treating a chronic antrum in the adult by through and through drainage is impossible in young children as it is not permissible with them to enter the anterior wall on account of injury to the undescended permanent teeth.

As we recognize the prevalence of antrum disease in children and as we appreciate its far reaching secondary results, we are impressed with the necessity or working out a satisfactory treatment. As my little patients were mostly office cases, the riot which ensued on any attempts to carry out any effective treatment was so appalling that for some time I contented myself with supplying washes and instillations for the use by the parents under the less exciting environment of the home. I found these methods exceedingly unsatisfactory and unreliable. I then started to train these children to allow me to use the postnasal spray with compressed air. I found that after winning their confidence and applying the spray to their parents as an example of its painlessness that after two or three sessions I was able to thoroughly wash out the nose from the postnasal fossa. This I consider the very best way of cleansing the nasal fossae and also freeing the ostea of the antra. One has only to see it applied to these little ones to realize its efficiency in expelling large quantities of muco pus from the throat and nose.

There is a great advantage of the postnasal spray over douches and anterior nasal syringing in that I have never once seen any of the wash or infected secretion driven into the middle ear through the Eustachian tube. Any spray applied through the anterior nares if it is to be of sufficient force and volume to in any way clear the nasal fossae and pharynx will cause considerable trauma and bleeding, thus defeating its aim. With the postnasal spray the only bleeding is from the pharynx and this only when there is adenoid or granulation tissue present. This bleeding rarely takes place after the first two or three applications and seems to be beneficial in relieving the congestion of the nasopharynx.

The postnasal spray should be applied as frequently as is necessary to keep the head clear and to allay the general symptoms. This application should be daily in some cases and in others only once or twice a week. The average is every other day for about a month and then less frequently. The procedure is of such a simple nature that an inexpensive apparatus is provided for the parents and they are instructed in the use of it. This, I think, is the proper solution of the problem in many cases. There are so many of these mild antrum conditions prevailing which demand treatment if the children are to reach their proper development that the rhinologists and pediatrists would be swamped with them. A parent has only to see the increased well being resulting from a few weeks of this treatment to be willing to provide himself with the means of continuing the treatment himself at home.

The solution used can be any good alkaline and antiseptic solution. I have for many years used the following modification of Dobell's as a nasal wash:

Sod. bibor.	
Sod. bacarb.	oz. iss
Ac carbolic	m. xxx
Glycerine	oz. ss
Aq. menth. pip.	oz. iiiss
Aq. dest.	q.s.ad.oz. xvi

I have used this treatment for the past two years in ages from 3 years up to 18 years. All the cases improved very greatly in so far that the symptoms and signs were greatly lessened or disappeared for a time entirely. In these periods the strength and resistance of the child was increased and on a reinfection a few treatments only would be sufficient for recovery. It is my opinion that this treatment in children under 8 years will often eradicate the infection. In children over 8, I think it is mainly supportive to enable normal development until the child is considered sufficiently mature to make a patulous opening from the antrum into the inferior meatus by means of operation. Only a small percentage of children have the poise to go through with a nasal operation under local anesthesia so that ether will generally be necessary when it is considered advisable to operate. Dean's(4) method is given below. The exact relationship of the antrum to the inferior meatus is ascertained by a careful X ray study. If the antrum has developed sufficiently low to lie well below the inferior turbinate attachment the opening is made in the inferior meatus, if it has not descended this far the opening should be made in the middle meatus. I have found the opening made in the middle meatus inclined to close and often difficult to find some months after operation. In making the opening from the inferior meatus, the inferior turbinate is turned up out of the way and by means of bone curette and rasp a sufficiently large opening is made so that later a cannula can be introduced for washing. The turbinate is now turned back to its proper place. If the inferior turbinate is found to so cover the opening that it would be impossible to introduce a small cannula without pressure, it would be advisable to remove a small portion of the anterior end, as much of the success of after treatment will depend on the possibility of painless washing of the antrum. It must be emphasized to the parent that the operation will not cure the condition but only render the antrum accessible to treatment and that in order to effect a cure the patient should be under periodic treatment for months and under observation at least a year.

Instillations of any of the following: argyrol 15% solution, 2% carbolic acid in glycerine, 1% chloramine T. in glycerine or 1% dichloramine T. in chlorcosane, are useful whether instilled into the nose after the postnasal spray treatment or injected directly into the antrum as postoperative treatment after the antrum has been opened.

Dean(6) advises the use of suction by means of Haskin's nasal catheters.

The chronic involvement of the sinuses always originates from the lack of complete resolution of an acute infectious disease. It seems therefore under prophylaxis, we should consider especially routine local treatment following the acute exanthemata. The general relief following the recovery from measles, scarlet fever, etc., is so great that little attention is paid to a purulent condition of the nose remaining afterward and the acute condition is allowed to become subacute or chronic. A few applications of the postnasal spray during the exanthemata and convalesence would do much to prevent so many of these children proceeding to established chronic nasal sinus disease.

Many of these cases clear up simply by removal of the adenoids which probably act mechanically by preventing nasal breathing and causing retention of the infected nasal secretions. Dean has found that the tonsils will keep up a sinus infection which may disappear on their removal. Parents must be warned, however, that removal of the adenoids and tonsils will not always clear up an existing sinus infection and that the child should be observed for a year after the operation. Many children reoperated upon for return of adenoids are really suffering from nasal sinus disease and their obstruction only clears up when attention is given to the sinus condition. A brief outline of four cases is given below.

Case No. 1—M. K., age 3½ years; consulted me with history of catching cold easily with a great deal of coughing. Her family doctor who referred her had advised the removal of adenoids and tonsils. Examination: Child normal size and weight, mouth breather, skin blue area below the lower lid. Coughing. Tonsils greatly hypertrophied. Nose has mucous secretion but is sufficiently patulous for breathing. Tonsils and adenoids were removed under ether. During the operation it was noted that there was profuse secretion from the nose into the throat. The cough was relieved to a great extent for three weeks when it returned, keeping the child and parents awake the greater part of the night. Examination showed the pharynx was violently red and thrown into vertical folds on gagging. The nose was partly filled with muco pus. The child was pale, tired, nervous and fretful. A diagnosis of sinus disease was made. This was verified by X ray which showed the left antrum cloudy and right antrum slightly cloudy. Postnasal spraying was commenced and a large quantity of mucous expelled through the nose. The results were immediate. The child slept through that night for the first time for a week. After the second treatment the child was entirely tractable and did not cry or resist treatment. Gradually her appetite became good, her color improved and she was taken through the rest of the winter without any further bronchial trouble.

Case No. 2—C. A., age 10. His mother brought the boy for examination of his eyes as she said he was not doing well in school. Eye examination showed eyes and vision normal. No refractive error under cycloplegic. Further questioning elicited that at five years of age he had scarlet fever with a running ear on the right side. Since then he has had terrific right sided headaches and gets extremely nervous. He says he cannot think in school and has not been able to make passing grades. He is now in the third grade. He is always in trouble over his lessons and dislikes his teachers. His color is yellow and he looks sickly. For the past six years his mother has consulted different doctors and a pediatrist who all told her that he was not assimilating his food on account of his liver not acting properly.

Examination Ears: Both membrana tympani intact. Right slightly dull, left normal. Pharynx very red on posterior wall. Tonsils, concretions expressed. Adenoids present. Diagnosis. Tonsils infected and adenoids enlarged complicated by nasal sinus disease. This was verified by X ray. The tonsils and adenoids were removed and the sinus trouble treated by postnasal spray. Three months after his mother reports he is getting stars and 100's in school. He likes his teachers. He has a good color and he can think clearly. His sinus trouble is still in evidence but seems entirely under control and he is going on to normal development. I feel that the remarkable change in this child would not have taken place solely on the removal of tonsils and adenoids which were so little in evidence that none of his previous doctors had suggested their removal. The main factor, I believe, was the effect of the tonsil removal and of the treatment on his sinus disease.

Case No. 3—S. R., age 9. Mother states that the boy has not been well for the past 4 years. He is listless, has a poor appetite, is pale and somewhat small for his age. His nose runs summer and winter. Had adenoids removed three years ago. Examination showed tonsils, small pus expressed. Pharynx, muco pus dropping from nose in large globule. Teeth, clear. Nose, muco pus in both middle fossae. Diagnosis. Sinus disease, mild infection verified by X ray which showed right antrum cloudy, left antrum slightly cloudy, other sinuses clear. Treatment consisted in postnasal spray three times a week at the office and nasal wash at home. Errors in diet and hygiene were eliminated. The boy showed marked improvement from the start and in two months was a normal healthy boy with red cheeks, good appetite and doing well in school. At this time it was decided to remove his infected tonsils. He returns twice a month for observation. The sinus infection is not cured but is so controlled that he is going along to healthy development.

Case No. 4—F. D., age 7. Seen first in bed with high temperature, fiery red pharynx and muco pus in the nose. Tonsils and adenoids had been removed. The boy had a history of constant poor health, nervousness and repeated colds. Treatment was given for the acute condition and on recovery X ray examination was made showing all sinuses slightly cloudy. The boy was taken out of school, given out door life and supportive treatment and treated regularly with the postnasal spray at the office. His general health became normal and he went through the winter without colds and with a steady gain. The family left this city and instruction was given to continue the treatment as the local condition was under control but not cured.

Case No. 5—R. E., age 7. Has had asthma for two years. The duration of the attacks are longer than formerly but they are less severe. Had his tonsils and adenoids removed one year ago but did not get much relief. Muco pus in nose and naso pharynx. Bases of tonsils remain. X ray taken four months previously showed both antra cloudy, other sinuses clear. The child is pale and nervous. As the parents lived at some distance and the asthma was becoming established and was of long standing, it was considered better to make an opening beneath the inferior turbinates according to Dean's method. The remains of the tonsils were removed, at the same time some adenoid bands were broken up. The parents were instructed in the postnasal spray and before the child returned to his home he was trained to submit to treatment. Four months later he has gone through the winter without any asthma, has gained in weight and is good color. There is still muco pus in his nose and throat occasionally and at times he needs the postnasal spray.

The study of sinus disease in children only dates back a few years and our ideas on all phases of this important subject have yet to be crystalized. It is with the purpose of arousing interest and further observations by others that I have submitted this brief paper.

DISCUSSION.

R. J. Murdock, M. D., Blair: While Dr. Lemere's very excellent paper on this somewhat new subject deals primarily with the treatment of sinus disease, I think he has opened up the way sufficiently so that it will be permissible for us to discuss the symptoms and diagnosis as well as the treatment. It is along this line I wish to say a few words.

The symptoms of sinus disease in children, as Dr. Lemere has pointed out, are two-fold. They are both the local and constitutional. The one particularly prominent local symptom is the nasal discharge, both anterior and posterior. Of course we have some involvement of the cervical glands, some discharge from the ear in some cases, and some mastoid conditions in others. But the profuse, persistent nasal discharge is the one particularly prominent local symptom.

As Dr. Lemere has pointed out, the constitutional symptoms are very numerous—namely, poor development, anemia, run-down condition generally, with nervousness—and listlessness, and all those symptoms we are apt to associate with what we have been pleased to call adenoid disease. While the symptoms closely resemble those of tonsil and adenoid disease, if we can eliminate the probability of adenoid disease and still have those symptoms I have mentioned, both local and constitutional, we shall be able to make a very clear-cut diagnosis of sinus disease.

It is well to remember most of those cases follow the acute infectious diseases of childhood—scarlet fever, measles, whooping cough, grippe—and even common colds are productive of this trouble. For this reason, it is quite important that the general practitioner shall be able to recognize this disease and to treat it promptly, because he is the first one to see it. It is not the pediatrist nor the rhinologist who sees these little fellows first; and if we as general practitioners can handle it properly, perhaps those other fellows never will see them.

In regard to the X ray: Dr. Dean says in his very excellent work on this subject that the X ray is of questionable importance in the diagnosis of this trouble. I see Dr. Lemere differs with him on that point. I think the idea is, Dr. Dean really admits the X ray is of great value in the diagnosis of antrum trouble, and most of those pictures that Dr. Lemere has shown would indicate it was the clearing up of the question of the antrum, rather than any other particular form of sinus disease in which the X ray was most useful.

The treatment, as Dr. Lemere has clearly pointed out, consists largely of the postnasal spray. It seems to me in all those cases, if taken early enough, postnasal spray alone, with considerable air pressure and using an alkaline antiseptic wash, is sufficient to hold these cases in control or to clear them up. Of course there are some cases that have been neglected, or chronic cases that properly may require some operative interference. But if we recognize them in their incipiency and treat them with the postnasal spray, we will be doing them a good service.

H. M. McClanahan, M. D., Omaha: Dr. Lemere is to be congratulated in calling our attention to a very important subject. I know of no one in Omaha who has given it the attention he has.

This brings up a broad subject. Dr. Billings, of Chicago, called our attention to the great subject of focal infections some years ago. The criticism of the medical profession was when that came up, we were disposed to attribute too many things to focal infections. On the other hand, it is a reality and a very distinct one.

I want to say a great many children after infectious diseases—and I would put measles first, scarlet fever second, and diphtheria third—develop a certain catarrhal condition. As a rule we are rather careless in treating these local infections following contagious diseases.

The epidemic for removing tonsils that has affected us all has led us to promise too much. We all recommend it. But removing tonsils and adenoids does not always cure them because there are other foci of infection not removed by the operation on tonsils and adenoids, although it is an entirely proper procedure.

I want to call Dr. Lemere's attention to this fact: The child who has an infection of the sinus — a nasal catarrh — is not always a very well child. I would urge the importance of general systemic treatment along with the local treatment — correction of the bowels, diet, and habits of breathing. It is an important thing to teach children how to breathe properly. Many a constipated child could be improved by proper breathing. I think we are apt to become a little narrow. We should see the patient as a whole. I came from the ranks of the general practitioner and have a high regard for him. He is the most useful man in the medical profession. You lose a part of the work you might do by not giving reasonable attention to these cases. The treatment is not a treatment to be limited to the rhinologist. Any of us can carry out the treatment.

The other point is that a large number of these cases are amenable to rational treatment outside of any radical operation. I would be very hesitant to have a radical operation if such treatment would benefit them.

I would say these children who have nasal discharge and frequent coughs and take cold easily are infected children therefore they should receive the local treatment; and I think it is just as important they should receive the constitutional treatment, including proper diet, correction of bowels, and especially proper breathing, which tends to improve the chest and general nutrition.

J. J. Hompes, M. D., Lincoln: I think that we, more than Dr. Lemere, are to be congratulated for the information and the precise manner in which the doctor has presented it.

It is true that the serious consideration of sinus disease in children is rather a recent thing and yet I heard Dr. Onidi of Budapest make the remark, as far back as 1912, that it was surprising how often sinus infections were found at post mortem in very young children. However, I think that all honor is due Dr. Dean, as he is the one man above all others who has presented the subject in such a way as to create a widespread interest.

The worthwhileness of a careful study of sinuses in children was answered by Dr. McClanahan when he said this is focal infection, for to my mind sinus infection from the standpoint of incipiency and harmfulness is the worst of all the focal infections.

One of the things that will worry a physician more than anything else is the fond mother who owns a thermometer and who calls up almost daily to say that her child has a slight temperature. Some of these cases are sinus cases. I have two children under observation who have been running temperatures almost daily since last fall and in both of whom maxillary sinus infection has just recently been found.

The question of treatment I believe has been the greatest deterrent in the diagnosis of sinus disease in the very young. We did not know what to do when we made the diagnosis. In recent years the ways of getting at these conditions has so improved that we are more willing, probably even zealous, to make a diagnosis of sinus disease, whereas before we were embarrassed when the diagnosis was obvious.

I have had very little experience with the postnasal spray, having generally used the anterior method. Nasal spraying and irrigating by any method is a poor thing and should be avoided if possible. Nasal douching is likely to lead from a single to multiple sinus infection by spreading the infection around.

Anyone intending to wash a nose by any method must keep certain things in mind:

1. A nose like a uterus has its adenexa and if solutions must be used, adequate return flow must be provided for.
2. Most infections of ears and other sinuses will be caused by forceful blowing, coughing and sneezing while the fluid is still in the nasal chambers.

To provide adequately for return flow in the very young is more imperative than in older persons for the reason that children have little or no middle meatal space and swelling of the inferior turbinates cuts off their nasal breathing entirely. Babies with colds can hardly nurse because their breathing is so impaired. Children's noses are relatively smaller than adult noses.

One method that I have employed for providing for an adequate return flow is to instill a few drops of 1/10,000 adrenalin solution into the nares with a medicine dropper fifteen minutes before irrigating or spraying. I always use the soft rubber ball syringe (ear and ulcer syringe) for irrigating and keep the child's head well forward during irrigation and for a short time afterward.

Another point in the prevention of sinus infections is the way we treat the common colds of childhood. The common cold is the cause of sinus infections in children for the special anatomical reasons mentioned before, therefore any treatment that will keep up nasal breathing, with the resultant aeration and drainage will be a preventive of sinus and ear infection. The best local treatment that I know of it the use of 4% argyrol, dropped into the nose every four hours. The benefits to be derived from this simple treatment, if generally used, would reduce the number of sinus and ear infections tremendously.

A. S. von Mansfelde, M. D., Ashland: I have heard the first mention of a number of things to be used as sprays through those parts. I want to mention one that beats all of them. When I say that, I know. That is the acetate of aluminum solution. Why we are not using it in our country is more than I can understand. It is a household remedy in Germany. It is a formula of the national dispensatory. If he will use that, he will find it perfectly harmless. One part to seven or ten of water, mixed with a little glycerin, is the proper proportion. It will be a revelation to him, as it has been to me.

I was called to see a woman with a diphtheritic infection of her wrist. Her daughter was down with diphtheria. The woman admitted she had been scratched there and she had infected the skin and had a diphtheritic infection. The lymphatics were swollen up to the elbow. I expected to lose the arm or the woman. You have seen those cases. I put the solution — one to seven — on the arm, and put on half a dozen layers of gauze over and above the present indication of swelling, and over this oiled muslin and bandaged it; and she lay 24 hours in bed with it. If you have seen a lady wash with soap and water, a half day, you will find her hands are bleached and wrinkled. That was the condition of this woman's arm the next morning. There was not a bit of inflammation left.

I am so much in favor of this thing that I tell my people on the railroad—I am the longest in service as a surgeon on the whole Burlington railroad—"If you have a telephone pole that is broken, don't hesitate to send for me. I will put some aluminum solution on both ends and bandage it, and next day it will be grown together."

I want the Doctor to try this, and then when he tells me I am all right, I do not owe him anything any more.

Newell Jones, M. D., Omaha: I think to me and to all of us in pediatrics, the greatest problem in these sinus troubles is to keep our patients coming long enough to get results. Most of our patients are inclined to come once or twice for treatment and get a little better, and want to quit. We can help out the nose and throat man a lot by impressing on these patients when we seen them, that it is not a question of going once or twice, but of staying at it for some little time to get any results.

Some will say, "What do you mean by that?" I usually tell them—I want to be optimistic: "It is from three months to three years."

The next thing that has impressed me has been the family infection. I believe I can name a dozen families where I have seen the children during the last winter, where practically every member of the family—even the nurse maids, and in one instance, the chauffeur—were all infected.

In the laboratory work, they have not reported any particular type of organism, but it seems to be a type that has a special predilection for the sinus, and seems to get anybody in close association with it, including the doctor, which I can testify to at the present time.

Our treatment as a whole to me has been rather unsatisfactory. (Dr. Lemere's postnasal spray has been the most satisfactory of anything), because of the recurrences. The patients are seemingly well and they recur. I think that is probably due to not keeping up the treatment long enough. If they will stay with it, they will get some results.

Now for the symptomatology: A year ago this spring we had a series of cases coming into our dispensary clinic with chronic coughs, the patients going down hill. On physical examination we found a rather rapid pulse. The patients looked in every way tubercular, but in conjunction with it we found localized symptoms in the nose, and some half dozen promptly cleared up from cough and the enlarged mediastinal glands went down after proper treatment of the sinus infections. Some were operated upon and some treated locally, but after proper treatment, their symptoms disappeared.

F. F. Teal, M. D., Lincoln: I will mention one point I think we should watch for. Of course we have been oiling and spraying the nose for years. Before we undertook to open up the sinus surgically, practically the only treatment was the spray.

I should like to utter a caution in the matter of spraying. I think if everybody goes home from here and starts to spraying noses without a clear idea of what they are going to do, they will all get into trouble. I believe the postnasal spray offers the best means of treating these cases, because you are washing away from the Eustachian tube. Why is that an advantage? Simply because we have cases that develop otitis media following the use of the spray intra-nasally.

At the time of the use of the wash, we must be sure the Eustachian tubes do not open. Caution your patients not to swallow during that process. Children are apt to swallow. When they do, the tubes open, and the pus may be washed into them.

After the spraying is over, the next procedure is to blow the nose. The tendency is to blow hard. Children should be cautioned not to blow their noses so hard they feel the effect in their ears. Caution them to blow with both nostrils open. That is the proper way, anyhow. If you close one nostril, the air will follow the line of least resistance by way of the Eustachian tube.

E. B. Brooks, M. D., Lincoln: I wish to thank Dr. Lemere for bringing this subject to our attention. He is pioneering on this, especially the treatment phase.

Dr. Lemere has mentioned the symptomatology, and diagnosis has been touched upon. I think we may mention one thing that he may have inferred. A good many children present foul breath or odor about the nose, excluding anything of a gastrointestinal factor, you may find this an indication of sinus trouble.

Another type of cases we all see, and I think probably the doctor has implied by his mention of the tonsil and adenoid work, are those that do not clear up and thrive after the removal of the tonsils and adenoids. We see youngsters with running noses who are still lean and pale after their tonsils and adenoids have been removed. That is a signal to look to their sinuses.

Some workers have reported the use of autogenous vaccine made by culture of these sinuses. I have not had experience along that line. I was in hopes he would dwell more upon that subject.

Dr. Lemere: I am very gratified in the discussion, which has brought out many points from different men in different fields, valuable to all of us.

I chose Dr. Murdock to lead the discussion because I knew he had an extensive general practice, and I wanted to learn the viewpoint of the general practitioner. I was delighted with his discussion.

The point that the cervical glands are sometimes involved is an important one. This is particularly so in the acute cases. The sinuses are responsible for this glandular enlargement, rather than the pharynx to which is usually credited the blame. These pharyngitides are symptomatically valuable insofar as they indicate a peripheral infection, generally in the sinuses.

Dr. Dean's opinion on the value of the X ray in his cases is different than I have experienced because he has dealt in his work with a different phase of the subject than I have been dealing with today. His report deals with pronounced cases of arthritis in which he would expect the X ray to show very definite evidence of infection in the sinuses. The cases I have been speaking of particularly are the milder forms and in these a slight degree of haziness has more significance. As Dr. Murdock says, Dr. Dean thinks the X ray is useful mainly as an indication of infection in the anterior sinuses and these include the antrum which I have found to be the most frequently affected of all the sinuses.

Dr. McClanahan always gives us something to think about. I am in hearty accord with what he says, and always cooperate with the general practitioner or the pediatrist, because I know the limitations of the head specialist when it comes to the general treatment. We are continually surprised to find the details we have overlooked when we hand the case over to the general practitioner or pediatrist for general treatment. My cases have all been in conjunction with the pediatrist or the family physician. The credit belongs to him for the general treatment.

Dr. Hompes' remark added to the value of the discussion. In stating the subject is new, I meant that the general recognition of the subject is new. I have found literature as far back as 1900 of a German observer Haark, who had made many autopsies in patients who died from measles, diphtheria and scarlet fever, and found the sinuses infected in every case, yet up to the present time we have failed to profit clinically by these findings. Dr. Dean's monograph is the classic of our present knowledge on this subject, especially in its more serious phases. Clemenson of London in the British Journal of Laryngology, takes up the phase I have dealt with, and his paper, which I did not see until I had written most of mine, emphasizes many of the points I have made. The importance of sinus disease in children is being recognized in Europe and America. I was glad to have Dr. Hompes bring out other methods of treatment. The discussion that will give the most varied forms of treatment is the best discussion, because what is successful in one man's hands is not successful in another. My own experience has been that I get the best results with the postnasal spray. I have tried many forms of treatment and have come to regard the postnasal spray as being the most efficient and safest method of treatment.

I will try Dr. von Mansfelde's suggestion of the use of acetate of aluminum.

I was glad to hear from Dr. Jones. He emphasized a point I want to see emphasized—the persistence of the treatment. These patients become entirely well and get reinfected. I think probably due to family infection, very often a chronic sinus infection in the mother. This infection may be carried in various ways, the use of the mother's handkerchief on the child. Kissing, coughing, speaking, and sneezing may all carry the infection.

Dr. Teal emphasized something that should have been stressed in the paper and was not, as to blowing the nose with both nostrils open. If that point had not been emphasized particularly, probably harm would be done by the treatment. If the mother grasps the nose and the child blows violently, the probabilities are it would blow infectious discharges into the middle ear.

Dr. Brooks asks about vaccine treatment. I have not tried it. It is hard to get the strain of bacteria responsible and also hypodermic injections terrify the child and complicate the treatment in these little ones. I think the main thing is to use a simple treatment, tide the child over the susceptible period and bring him to normal development.

I am very much pleased at the full discussion.

1. J. Parsons Schaeffer, "The Nose and Olfactory Organs."

2. Mullen Annals Otol. Rhin. & Laryng., Sept., 1921.

3. Dean & Byfield University of Iowa Studies, Vol. 11, p. 15.

4. Dean & Byfield University of Iowa Studies, Vol. 11, p. 7.

NEWER VIEWS IN THE TREATMENT OF LUETIC OPTIC ATROPHY.*

Sanford R. Gifford, M. D., Omaha, Neb.

Only a few years ago the profession was practically unanimous in pronouncing its doom of ultimate total blindness, on any patient with syphilitic optic atrophy. The only hope presented was an occasional very slow course, with death occurring before the process to blindness should have become complete. A large number of clinicians today are almost equally gloomy in their prognosis. This paper is presented, not to report any very surprising results in these cases, but to bring up for discussion the question whether such an attitude is warranted, or whether modern science has given us any hope to offer these patients.

The question hinges largely on the pathology of luetic optic atrophy. The older teaching, still accepted by many men, was that the disease is a simple atrophy, due to toxins produced elsewhere in the body affecting the nerve to produce degeneration, without any active inflammation being present in the nerve or visual tracts. The nerves examined by Cruveilhier, Virchow, Uhtoff, Wilbrand and Sanger, and others showed simple gray degeneration. Others, such as Moxter and von Michel, Elschnig and Gliksmann, found degenerative changes most marked in the retinal ganglion cells; and the theory was advanced that the process is an ascending atrophy beginning with injury to the retina.

Keraval and Raviart(1), however, though they found degenerative retinal changes, found also proliferative changes in the nerve and its vessels which indicated a previous active luetic inflammation. The above reports have concerned only small numbers of eyes. Marie and Leri(2) examined the nerves of 60 tabetics and paretics. In all those with optic atrophy they found evidences of previous active inflammation in the nerves or visual tracts. Degeneration of the retinal ganglion cells was noted, but the changes in the nerves were always more extensive and hence the lesions could not have originated in the retina. From this mass of material they conclude that the first lesion in the nerve is the ordinary peri and endo-vasculitis of tertiary syphilis. As the vessels become obliterated, connective tissue is formed and the nerve becomes atrophic.

The most complete investigation of the subject is that of Stargardt(3). He examined the complete visual apparatus, retina, nerve and optic tracts in 21 cases of tabes and paresis and correlated the post mortem changes with the field defects found during life, fixing the retina immediately after death by a special method. He confirms Marie and Leri's findings in the most convincing way, finding in all cases of atrophy the evidence of active syphilitic inflammation, infiltration of the pia and the pial septa extending into the nerve, and around the vessels. In eight early cases, he found these changes in the nerve, with no changes in the retina, so that the theory of a retinal origin is disposed of. The changes are those of late syphilis elsewhere in the body, due to the presence of spirochaetes and causing secondary degeneration of the nerve. Thus primary optic atrophy in the old sense may be said to be a misnomer.

The practical significance of all this work is clear. It means that if there is an active process at work, the possibility exists that it may be stopped if the spirochaetes can be killed. Of course, any degeneration of nerve fibers will not be repaired, and nerve fibers already injured may go on to complete degeneration, but if the active process is stopped, we may expect those fibers which remain to survive; and vision to suffer very little further loss.

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*Read before the Nebraska State Medical Association, Omaha, April 25, 1922.

If we believe in the presence of the active process, then it becomes of great importance to make the earliest possible diagnosis, so that cases may be treated before extensive atrophy has occurred. (This can only be done by making frequent examinations of all suspected neurosyphilitics, including spinal fluids and careful visual fields). Once a diagnosis is made, we will lose no time in using strychnine, electricity, or other so-called nerve stimulants, but bend every effort to an attack on the spirochaetes. Can the spirochaetes in this condition be reached by our therapeutic measures, and if so, what is the best method of reaching them?

It is well known that ordinary systemic treatment is usually ineffective in optic atrophy, as in any form of neurosyphilis. This is because the organisms are ensconced in the nervous tissues where drugs given by vein can hardly reach them in effective concentration. A few have reported some success by intensive salvarsan treatment. (Iwaschenkoff and Nonne)(4). These cases are very exceptional, and most were not followed for long periods. It is common to see the optic atrophy develop during such treatment and go on to blindness. When spinal injections by the methods of Swift-Ellis and others were first reported, it seemed that this might offer a better mode of attack in optic atrophy. It was soon found, however, that though some cases of tabes were much improved and apparently cured, cases with higher lesions, paretics and cases of optic atrophy did not respond so well. Some paretics showed improvement, but in most cases this proved to be only temporary. Many men are still using these methods and some results have been reported in optic atrophy. Gennerich(5) reports two cases, in one of which vision of 6/24 and 6/12 was held the same for five years. Fordyce(6) reports one case with vision improved from 20/70 to 20/40 in one eye and held so during observation of ten months, and another in which vision of 20/30 was kept for one year. Both cases had lost the sight of one eye after general treatment.

Knowing what we do about the circulation or diffusion of the cerebrospinal fluid from the choroid plexus downward, the cases of failure in these higher lesions seem easier to understand than those of success. Weed(7) has shown that dyes could be forced from the spinal canal into the sheaths of the cranial nerves only by using continued pressure for over three hours. Injections made in the ordinary way would thus never reach the optic nerve, as Schoenberg(8) proved by injecting dyes intraspinally. He used no continued pressure and the dyes seldom reached above the posterior fossa. Ayer(9), realizing this fact, injected salvarsanized serum followed by saline under pressure of 408-600 mm. of water for 3/4 to 1½ hours, at which time craniotomy showed the presence of the serum at the frontal pole. He reports four cases of optic atrophy held stationary for three months by this method. The use of this pressure, however, would seem likely to produce severe reactions besides its inconvenience.

In view of these facts the plan adopted by Behr(11) would seem in some ways more logical than spinal treatment. He drew off the spinal fluid at intervals during intravenous salvarsan treatment, believing that this would increase the amount of drug reaching the nervous system from the blood. Dercum(12) has used this method extensively in this country and claims good results, but Stokes and Osborne(13) after a careful comparison of results by this and the intraspinal methods, found spinal drainage to have little or no advantage over general treatment, while spinal treatment showed distinct advantages. There can be no doubt, as Mehrlens and Mac Arthur(14) have shown, that the effect of intraspinal treatment is not due solely to the amount of drug so administered, but partly to the irritant effect of the serum increasing the permeability of the meninges to the drug present in the blood. In any event, neither of these methods has proven satisfactory, in most hands, in the treatment of paresis and optic atrophy.

Another method called by Corbus and his associates(15) "Spinal drainage without Lumbar Puncture," has recently been advocated. This is the intravenous injection of hypertonic (15%) sodium chloride solutions, which has been shown by Foley and Putnam(16) and others to markedly reduce pressure in the cerebrospinal cavities. This draws a large amount of cerebrospinal fluid into the blood by osmosis during six hours and if an intravenous injection is then given, more arsenic should be diffused into the fluid as it is replaced from the blood stream. Corbus and his co-workers found arsenic in the fluid of 93% of their cases in which this was done. This method is still in the experimental stage. Some paretics at the University Hospital have been treated by this method and perhaps Dr. Keegan can give us some report on these. I do not know of its having been used in optic atrophy.

In 1916, Schoenberg(8) having shown the failure of dyes injected intraspinally to reach the optic nerve, succeeded in staining them intensely in animals by injecting into the lateral ventricle. Wegeforth(17) had shown that injections into the basal cisterna has this effect, and that if the aqueous was drawn off at the same time, the stain penetrated between the nerve bundles of the papilla and reached the surface of the retina. Following this experimental work Schoenberg(18) began the use of intraventricular injections in his cases of optic atrophy. He reports five cases followed for two or three years in which some intracranial treatment was given. Four of these had suffered loss of vision to 10/200 or less during general and spinal treatment and in spite of temporary arrest or improvement, after one to five intracranial injections of salvarsanized serum, eventually failed. Apparently the only case where treatment was begun earlier showed an increase of vision from 15/100 to 20/70 in the best eye and held this for four months till he was removed from treatment. Suker has been using intraventricular injections of mercury bichloride for a number of years. I believe he has not published his results as a whole, but has presented several cases before societies. One of these(19) received six injections of 1/100 to 1/25 grain and has held vision of 10/30 with the same field in both eyes for four years. Four of his cases are mentioned in the Encyclopedia of Ophthalmalogy, all showing improvement. In a personal communication, Dr. Suker has said that he has, in almost all cases, been able to preserve what vision was present, and often to improve it considerably.

I know of no other ophthalmologists who have published their results by this method. Dr. Gradle of Chicago, in a personal communication, stated that he has used Dr. Suker's technique, in several cases, and referred others to him for treatment with results much better than the old methods had given.

Hammond and Sharpe(20) have used injections of salvarsanized serum (.6 mg. of neosalvarsan added to serum) and neosalvarsan itself in the lateral ventricle in cases of paresis, and report two with considerable improvement. Campbell and Ballance(10,21) report three cases of paresis followed for some years after intraventricular injections of salvarsanized serum. No bad effects were seen and one case was alive and apparently well after five years. One case of optic atrophy who was almost blind showed no effect of treatment.

Hamill(22) treated two paretics with 100 mg. of neosalvarsan divided between the two lateral ventricles. One showed some improvement in general condition. This case had optic atrophy, but the effect on his vision is not noted. He points out that these very large doses are fairly well tolerated by this route, while by the Swift Ellis method only about 2-3 mg. are usually given.

Marinesco and Minea(23) treated 19 cases of paresis and tabo-paresis, injecting 6-20 mg. of neosalvarsan added to serum in the cerebral subarachnoid space. They report some improvement in the mentality of four cases. They do not believe that the method offers much hope of cure in paresis, but think it should be combined with intraspinal and intravenous therapy.

Others who have used intracranial treatment are Wardner, Sicard & Lapointe and Marie, Levaditi, and Martel. These not very encouraging results in paresis need not imply similar ones for optic atrophy, since all of these cases were in advanced paretics, and many of our optic atrophies show a much less general involvement. Often, indeed, there are clinical evidences of very little nervous involvement except that of the optic nerves.

This is true of most of the cases I have to report, which are as follows:

Case No. 1—Mr. H. ,48 years old, a banker, had been taking anti-syphilitic treatment for the past fifteen years, spending a great part of each year at a famous health resort. He stated that eight months before he came in his blood Wassermann reaction had been negative, and that it was negative once before. He had never had a spinal puncture. He complained that vision had been failing in R. E. for 1½ years and in L. E. for the past ten days. There were no other symptoms of active infection and he was thought to be cured. When first seen vision was R. E. 20/100, L. E. 20/30. With correction, L. E. 20/20. Both nerves were quite pale. In spite of this good central vision, his field was contracted to about fifteen degrees all around in the left eye and in the right eye a large central scotoma prevented a satisfactory field. Spinal fluid showed 20 cells, globulin increased, Wassermann reaction 3+ and gold curve suggestive of tabes. He returned in a week to get his report, having used mercurial inunctions in the meanwhile. During this week, vision had fallen to R. E. 20/200 and L. E. 20/50 and the field was within 10 degrees all around. (See Fig. I.). He had no color perception R. E. and with L. E. could not see green and saw red only at the center. After consulting with Dr. Patton, we decided that our previous experience would not warrant anything but a very bad prognosis so we sent him at once to Dr. George Suker of Chicago for intraventricular treatment. Dr. Suker gave him 4 injections of 1/50 grain of mercury bichloride into the lateral ventricle in the course of about three months, with inunctions and potassium iodide in the meanwhile. Dr. Suker was kind enough to report frequently about him and to send me his fields. He showed a remarkable improvement following the first injection and after two weeks, the fluid removed was negative to all the tests. We saw the patient after ten months and found vision of 20/15 in both eyes with correction. He perceived the colors with both eyes, the fields (see Fig. II.) showed much improvement being out to 35 degrees temporally in the left eye and a good field out to 10 degrees could now be taken in the right eye. He could read fine print easily and had no trouble in getting about except at night. He reports by letter a few days ago, fourteen months after his first visit, that vision is the same as when our last record was made, and general health good.

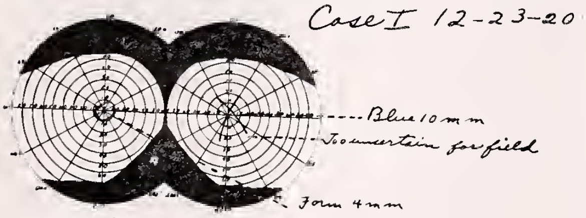


Fig. I

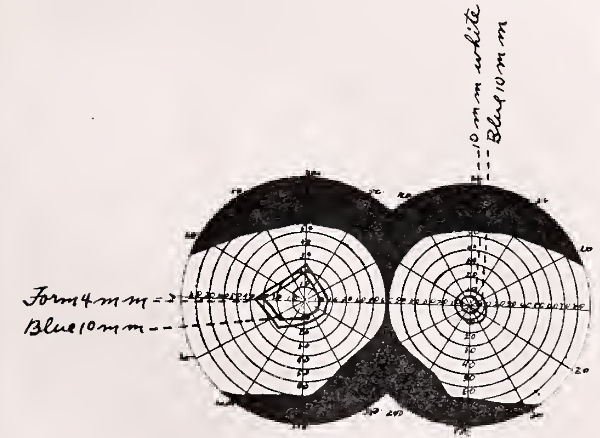


Fig II 10-21-21

This most surprising result made us review our previous experience, which was not encouraging to a continuance of our old methods. The cases treated by mercury and potassium iodide and those where salvarsan had been added, where they could be followed, had all gone down hill. We had recommended spinal treatment in a few cases and one of these had held his own for some time. He had, however, suffered a paralysis of both legs and of his bladder following one such injection by a competent neurologist, from which he had recovered after some months. We then tried spinal drainage after giving neosalvarsan by vein. Two cases showed no improvement and were lost sight of. One steadily lost ground under treatment and it was stopped. One held good central vision with a small central field for three months but did not come in for further treatment.

Since our experience in Case I, we have used intraventricular treatment in three other cases. In the first case, Dr. G. A. Young kindly gave the injections, in the last two, Dr. J. J. Keegan has given them.

Case No. 2—A man of 60 had been losing sight for several years and showed an advanced stage of optic atrophy. Both nerves were very pale, vision was 5/200 in each eye, and there were large central scotomata. The patient could hardly get around by himself. Spinal fluid showed 125 cells, globulin plus and Wassermann reaction strong 2+. This was considered the most unfavorable type of case for any treatment but since he came from Wyoming for treatment, he was given two injections of 1/50 grain of mercury bichloride in the lateral ventricle, besides mercury and salvarsan systemically. This was without beneficial effect during the two months he was observed. His fields even became slightly smaller, and 14 months later his doctor, Dr. W. F. Smith of Lander, Wyoming, writes that he subsequently became blind and died, apparently of general paresis.

Case No. 3—This was also apparently an unfavorable one for treatment, a man of 35 who had noticed vision failing steadily for the past sixteen months, in spite of four injections of salvarsan, and weekly injections of sodium cacocylate during most of this time. At the time of his primary infection five years before, he had received some antisyphilitic treatment, and was considered cured. He had some of the symptoms of beginning tabes. When first seen, vision was 18/200 R. E. and 2/100 L. E. with fields as shown (Fig. III). Both fields showed central scotomata and in the lower half of the right field, vision was only relative. Both nerves were pale, the left more so. Spinal fluid Wassermann reaction was + in .4 and .8 cc. He received three intracranial injections of 1/50 grain of mercury bichloride in five weeks. Central vision has remained the same, 18/200 in the right eye and for

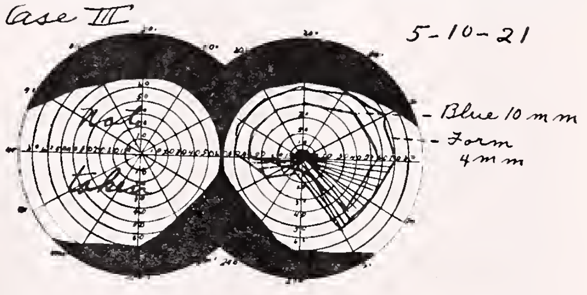
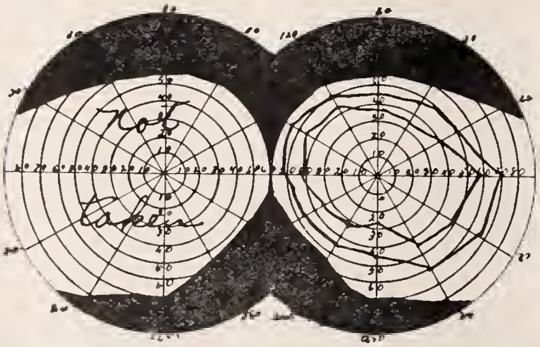


Fig III

NOTE: R. E. has absolute scotoma as marked scotoma for 2 mm object as shaded.

one year has diminished slightly in the left. The right field, however, has shown considerable improvement, is larger and vision is clear in the whole lower half, while the central scotoma has improved enough so that he can read handwriting and large newspaper type and can carry on his work as a travelling man. The failure in the poor eye is what could be expected from a nerve already so far degenerated, while the improvement in the best eye is distinct, and I hope permanent. Spinal fluid is now negative and he has no more girdle pains nor trouble with the bladder.

Case III Fig IV 4-10-22



Case No. 4—Frank G., a man of 33, had a primary infection some years ago and received general treatment. He was referred by Dr. Weaver of Shenandoah, with a history of poor vision first noticed in the right eye two months before. Vision was R. E. counting fingers at eight inches, L. E. 20/30. Spinal fluid Wassermann reaction was weakly positive. Both nerves were decidedly pale. He received, besides mercury inunctions and potassium iodide, four injections of 1/50 to 1/40 grs. mercury bichloride, two in the lateral ventricle, and the last two in the cisterna magna. Just after the last injection, I drew off his aqueous, following Wegeforth's idea. The field of his good eye has remained the same, but central vision has failed to 20/50 during four months of observation. Whether this failure is due to degeneration of nerve fibers already injured and will become arrested, only time will tell. From the rapidity of failure before treatment was begun, I am inclined to believe treatment has at least slowed the process and that it may prove to be arrested.

I am far from wishing to put forward this method as a panacea in such a grave condition as optic atrophy. I wish to bring out, however, reasons for believing that there is some hope for some of these cases, especially if they can be diagnosed early. This method, in its brief trial, has given better results than the older ones, and I hope time and more experience will confirm me in my belief in the efficacy of early treatment.

CONCLUSIONS.

1. Luetic optic atrophy is dependent on an active syphilitic process in the optic nerve or tracts.

2. It requires special methods of therapy to reach the site of the process.

3. Spinal treatment seems to be superior to either general treatment alone or such treatment combined with spinal drainage.

4. Intracranial treatment with mercury bichloride is apparently more effective than these other methods and in favorable cases, should be tried early.

5. Early cases respond better than late cases. When vision is less than 10/200, I would hesitate to recommend intraventricular treatment. However, since I have seen the simplicity of cisternal injections as performed by Dr. Keegan, there seems less reason for considering the intracranial treatment to be especially radical (dangerous).

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DISCUSSION.

J. Jay Keegan, M. D., Omaha:—The subject of syphilitic optic atrophy is one of the most desperate subjects in all medicine on account of the apparent futility of all treatment and the inevitable progressive loss of vision. Consequently anything which may promise even an arrest of the failing vision is worthy of trial.

A great amount of recent work has clarified somewhat our views of neurosyphilis, emphasizing its frequency of occurrence and the necessity of cerebrospinal fluid examination before any case of syphilis can be called cured. Delay in recognition of neurosyphilis till advanced destructive lesions have developed, brings most forcibly to attention the old saying that an ounce of prevention is worth a pound of cure, for the most that can be hoped for in the treatment of nervous system pathology is an arrest of the destructive process, with no regeneration of destroyed nervous tissue.

The intraspinal injection of salvarsanized serum in neurosyphilis does not extend far enough beyond the posterior fossa subarachnoid cisterns to have much possible therapeutic value in syphilitic optic nerve atrophy. The usefulness of this treatment has been found by those of extensive experience to be limited to tabes dorsalis or syphilitic lesion in the spinal cord. Very little influence has been recorded on optic nerve atrophy.

There are two other methods of introducing medicinal substances into the cerebrospinal fluid. One is by lateral ventricular puncture and the other is by cisternal puncture. The advantage of these two routes is that the injected substance spreads more diffusely over the whole central nervous system, bathing the optic nerves. Intraventricular injection is made through a small trephine opening in the frontal region, through which a needle is inserted to a depth of five centimeters to the anterior horn of the lateral ventricle. This puncture requires surgical technique and requires skill and judgment in insertion of the needle in the right direction and to the right depth to avoid serious injury. The medicinal substance injected into the lateral ventricle must pass through the third ventricle, the Aqueduct of Sylvius, and the fourth ventricle before reaching the basal subarachnoid spaces, from where it flows anteriorly to the optic nerves and over the cerebral cortex.

Cisternal puncture is a relatively new procedure of practical application. It consists of insertion of a needle into the back of the neck between the occipital bone and the first cervical vertebra, to enter the cerebello-medullary subarachnoid cistern of cerebrospinal fluid. The chief danger of this puncture is the same as ventricular puncture, that of inserting the needle too far. A depth of six centimeters is never exceeded. Fluid usually is obtained at a depth of four to five centimeters. Several hundred of these punctures have been reported recently, without accident or serious consequence. Injection of medicinal subsances into this cerebrospinal fluid cistern obviates the circuitous route necessary in intraventricular injection, for the fluid to reach the optic nerves. It would seem to have advantages over intraventricular treatment of syphilitic optic atrophy, but neither has yet been established as an effective therapeutic measure in this trouble.

Dr. Sanford Gifford, Closing:—I want to thank Dr. Keegan for his discussion, and to emphasize the fact that the last method we have been using of cisternal puncture seems to be productive of much less reaction than intraventricular injections. Some who have done this had temporary hemiplegia. So far we have been having no reactions at all following injections into the cisterna magna, and others have reported the same kind of results.

THE RADICAL MASTOID OPERATION.*

Earl B. Brooks, M. D., Lincoln, Neb.

The radical mastoid operation is performed less frequently nowadays than formerly. There are a number of reasons for this. Better training in otology has resulted in more careful and painstaking medicinal and local treatment including early paracentesis, so that many cases undergo resolution which formerly were neglected and went on to chronicity or operation.

A more accurate knowledge of the pathology of acute otitis media aids in the early recognition of mastoiditis and the complete simple mastoid operation effects a cure more rapidly and frequently than in the old days of the Schwartze operation which as we all know consisted of a cone shaped opening down to the antrum without an attempt to eradicate all necrosed bone.

From time to time chronic otorrheas which have lasted for years, usually in middle aged or elderly people, come under the observation of all of us. These, in themselves, are evidence that although the possibility of intracranial complications is recognized today as formerly, there is more disposition to temporize and try various local measures and minor surgical procedures, including paracentesis, enlargement of perforations, curetting of granulations and ossiculectomy before resorting to the more radical procedure. Despite all these eliminating agencies there remains a group of cases in which the operation is definitely indicated. We wish to discuss briefly the development of the operation, together with the indications, after treatment and results.

Dunlap(1) refers to a radical mastoid operation performed by Dr. Turch in 1758 and reported in 1761; however, the development of the present radical mastoid operation according to literature at our command, seems to have a much later date.

Phillips(2) states that "in 1873 Von Troltsch made the first attempt to modify the Schwartze operation by removing portions of the posterior superior canal wall."

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*Read before the Nebraska State Medical Association, Omaha, April 27, 1922.

Gradle⁽³⁾ states that "nearly at the same time Keuster, Zaufal and Stache (1889 to 1890) advocated a more radical operation than the mere opening of the mastoid in chronic cases by removing at the same time the posterior wall of the meatus and external wall of the attic."

Stacke's operation was designated primarily for the removal of the ossicles.

The radical mastoid operation as described by Gradle, Phillips and Loeb⁽⁴⁾ is practically that of Zaufal, or a development of it. The details may be had in any of these texts. I shall only briefly enumerate the various steps:

1. Curvilinear incision closer to the auricle than in the simple mastoid, down to the bone.
2. Retraction of the periostium forward and backward.
3. Separation of the membranous canal wall from the bony meatus and its attachment to the annulus tympanicus and retraction forward together with the auricle.
4. Antrum exposed and mastoid cells cleaned as in the simple mastoid.
5. Removal of posterior canal wall as far as the horizontal semi-circular canal.
6. Removal of malleus and incus.
7. Removal of external wall of attic.
8. Removal of granulations from tympanic cavity and curettage of tympanic end of Eustachian tube.
9. Plastic of posterior membranous wall of meatus.
10. Dressing.

In determining the indications for the operation it is well to remember that our objective is the conversion of the external auditory meatus, tympanic cavity, mastoid antrum and cells when diseased, into one wide open cavity, removing all granulations and diseased bone in an effort to eradicate the infection once and for all and to secure epidermatization of the resulting cavity.

Pfingst⁽⁵⁾ has stated the indications for the radical operation as follows:

1. "Recurrent uncontrollable granulations in the ear during chronic purulent otitis.
2. Facial paralysis during chronic otorrhea.
3. Symptoms of purulent labyrinthitis; as nystagmus, vertigo, dizziness, nausea and vomiting.
4. Chronic suppurative otitis media with evidence of cholesteatoma.
5. Perforations in Shrapnell's membrane."

After Treatment: A fruitful source of failure is neglect of after treatment. Loeb⁽⁴⁾ and Beck state that after treatment in this operation is important in indirect proportion to the rapidity of recovery and absence of complications. They pack the cavity lightly every other day. Later relying on small bits of gauze or cotton.

M. Lyon Mercado⁽⁷⁾ reports cleansing the cavity with hydrogen peroxide diluted ½, or fresh Eusol solution half strength. He then packs the cavity with ribbon gauze soaked in a solution of ½% picric acid and 7½% methylated spirit. Discontinues packing at the end of 4 weeks; after that merely syringes the ear.

Smith⁽⁸⁾ omits packing at the end of 10 days and cleans the cavity by means of irrigations every 4 hours, followed by 95% alcohol dropped in meatus.

We have found the following applicable in the majority of our cases:

1. Unless contraindicated by lateral sinus or other complications, the post-auricular wound is closed at operation.
2. Cavity packed through concho-meatal opening with iodoform, ½ inch selvage edge tape. This is removed on third or fourth day.
3. Daily dressings for about 2 weeks, then on alternate days. Cavity cleansed with borated alcohol or hydrogen peroxide. We have used dichloramine T. 3% in chlorcosan to clean up the infection, but have thought that it overstimulated granulations, a thing to be avoided.
4. Granulations controlled with the ring curette and 50% silver nitrate.
5. Amount of packing diminished as healing progresses, usually complete in 6 to 8 weeks.

Results: We shall discuss results with reference to:

1. Cure of the otorrhea.
2. Effect on hearing.
3. Effect on life.

As to the cure of the otorrhea we may reasonably expect a complete healthy dermatization of the operative cavity. In other words a dry ear in the majority of cases. A persisting otorrhea may be due to a number of causes:

1. Failure of closure of the Eustachian tube may cause reinfection from the nasopharynx from time to time.

2. Inability to completely eradicate extensive necrosis at the time of operation owing to its extent in dangerous areas as for instance proximity of the facial nerve, lateral sinus, labyrinth or jugular bulb.

3. The presence of tuberculosis or syphilis is known to militate against rapid dermatization and bone necrosis is prone to recur.

4. In some reported cases of recurrence of discharge months after complete healing, examination has shown a partial or complete secondary membrane to have formed, hehind which blood serum and cellular detritus had accumulated. These promptly cleared up after removal of membrane and repeated cleansing with alcohol or other antiseptic.

Effect on hearing: The hearing usually remains the same or is improved. Literature in the cases of impaired hearing following the operation is not so profuse. This may be due in part to the fact that in many cases the hearing is negligible at time of operation. The formation of adhesions about the foot plate of the stapes and involvement of the labyrinth as a result of inflammation or trauma tend to produce poor hearing.

Dunlap reports a case in which hearing improved markedly. Before operation-whisper 4 feet; voice 20 feet; B. C. C.(1) Fork 11 Sec. A. C. 8 Sec. Remi negative; Hightone limit, C.3 long. After operation A.S. whispers 20 feet. This case showed a white shining epidermatized membrane over the whole inner wall which, resting on the stapes, he thought acted more or less as a normal membrane.

Long in Illinois Medical Journal and J. Morrissette Smith in the Laryngoscope, report series of cases in the majority of which there was distinct improvement in the hearing.

Phillips(2) in 75 cases found the hearing improved in 28; unchanged in 25; and impaired in 22.

In our limited experience to date, we cannot report the hearing definitely improved.

As to the effect on life, I think the operation is universally conceded to be a life saving measure when properly performed, eradicating a focus of infection and eliminating the ever present possibility of intracranial complications.

SUMMARY.

1. The radical mastoid operation is a capital operation with definite indications and requiring accurate anatomical knowledge and surgical skill.

2. The results of a properly performed operation may be vitiated by the neglect of after treatment.

3. The operation is performed for the purpose of removing a focus of infection and the danger of intracranial complications; not for improving the hearing. Usually the hearing before operation is a fair indication of what the hearing will be after operation.

The following case report illustrates one of the causes of recurring or persistent discharge: M. H. Age 10, seen July 29th, 1921. There was a history of otitis media purulent left since a baby. Tonsils and adenoids had been removed, membrana tympani had been completely destroyed and granulations protruded into the meatus. There was a slight purulent discharge and a foul odor, some postero superior meatal sagging, some mastoid tenderness and swelling. Temperature 101.6. W.B.C. 17,800. Patient was a stolid little body and it was difficult to get responses from her. On doing the hearing tests, left hearing was apparently poor; right hearing normal.

Radical mastoid operation August 6th. Mass of granulations and pus were encountered just beneath the outer table of the mastoid process and these filled the cancellous cells, antrum, aditus and tympanum. These were removed and wound cleaned. Two strips of iodoform tape packed through concho meatal opening. A wick inserted at dependent portion of post-auricular wound. Ear dry and clean Sept. 22nd about 7 weeks after operation.

Febr. 8th, 1922: They reported that the little girl's ear was "smelling again." Examination showed a small amount of muco-purulent secretion in meatus. Some granulations on inner wall, more marked in region of tympanic opening of Eustachian tube. These were curetted; on alternate days, the ear cleaned with borated alcohol and touched with 50% silver nitrate. Ear dry March 4th. Recurrence was here due to failure of closure of Eustachian tube. L.H. Whisper 1 foot. Watch 2 in.

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DISCUSSION.

J. B. McPherson, M. D.: Dr. Brooks had gone into the subject of the "Radical Mastoid Operation" in a simple, concise and practical manner. I wish to congratulate him on the way he has presented this paper.

We have undoubtedly advanced somewhat in the treatment of acute suppurative otitis media during the past twenty years. The early recognition and early paracentesis of the tympanunum have been the means of reducing the number of mastoid operations.

The radical mastoid operation is performed less frequently nowadays than formerly, and I feel that the paramount reason why many more of these cases do not result in radical mastoid operation is that we are able to do a better simple mastoid operation. However, there are quite a number of chronic discharging middle ear cases that require a radical or at least a modified radical mastoid operation.

The conservation, if possible of the membrana tympani and ossicles, and with these the better chance to retain in many cases a serviceable ear, means a very great deal to every patient.

I feel that there are no two cases exactly alike. Conditions vary greatly. In some cases we may be able to save more important structures than in others. Each individual case should be operated upon with the idea of extending the operative interference just so far as the advances of the disease indicate, and all healthy or redeemable tissues saved if possible.

In the case the doctor reports of the little girl with the recurrence, together with all symptoms including a high leucocyte count, it was probably due to the fact that not quite all the infectious material had been removed.

Dr. G. E. Davis (Journal, A. M. A. Jan. 18th, 1919) has devised a modified blood clot dressing after mastoid operations. Following exenteration in radical mastoidectomy the post-auricular wound is closed completely and the mastoid cavity, tympanum, and canal are packed with iodoform gauze through the enlarged meatus. This gauze packing is removed the following day, and the entire cavity to the level of the meatus allowed to fill with blood occasioned by its removal. If sufficient blood is not thus obtained the tragus is cut for the balance. The meatus is covered by a layer of gauze or cotton, over this sterile petrolatum and over all an outer dressing which is changed daily. Sutures are removed on the second or third day; the clot begins to disintegrate in three or four days, and usually by the end of two or three weeks the clot is completely absorbed or disintegrated. Should exuberant granulations appear on the median tympanic wall a 50% silver nitrate solution is applied.

If we could pick our cases and be sure we had a sterile field, it would be the ideal dressing, but it is a hard place to get a sterile field.

Dr. Brooks: I thank Dr. McPherson for the discussion. Personally, I have not had any experience with blood clot in the radical operation. The use of the blood clot has been mostly in secondary closure of simple mastoid wounds when we find them free of anaerobic bacteria. In those cases we can close and facilitate healing of the wound in patients of low conditions that would otherwise take months to granulate in, and leave an unsightly scar.

THE RELATION OF ANAPHYLAXIS TO THE PRACTICE OF EYE, EAR, NOSE AND THROAT.*

H. F. Morrison, M. D., Lincoln, Neb.

It is not the intention of this paper to present for your consideration new or original matter, but rather to attempt to gather together from the vast mass of literature upon the subject of anaphylaxis that which more particularly pertains to our specialty. Anaphylaxis is an example of a problem first studied from a purely scientific viewpoint coming to have in the end a practical clinical application. This practical aspect is most important to all of us in the handling of our patients. However, anaphylaxis in its broad sense, being as it is a part of the subject of immunity, should be of interest to us aside from its practical value in that it brings us at once in contact with the really big things in medicine. Men following any special line of work are most prone to become narrow in their views. This tendency must be guarded against by all of us if we wish to have and enjoy a broad, tolerant outlook upon the work of men in other fields. In no other way except by breadth of view are we able to retain the very rare virtue of an open mind.

Jenner in 1798 found quite regularly in persons who had had either cowpox or smallpox previously, that the inoculation of variolous matter produced only a tingling sensation and an erysipilatous look appearing on the skin near the punctured part, but it died away in a few hours without producing any variolous symptoms. This is probably the earliest recorded observation on anaphylaxis.

In 1839 Magendie, injecting egg albumin into dogs, recorded typical examples of experimental anaphylaxis. These experiments were lightly considered and lost sight of, only to be rediscovered later by other workers. Longcope gives credit to Blackley for the first serious consideration of hypersensitiveness in man. In 1873 he published his observations, showing quite conclusively that the application of grass pollens to the nasal mucosa of sensitive persons would produce an attack of hay fever. The first systematic study of the effect of injections of foreign proteins began with the introduction of diphtheria antitoxin in 1894. In this year Lublinski described serum sickness as a sequel to the injection of diphtheria antitoxin.

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In 1898 Richet, working with the poisonous proteins from sea-anemones and edible mussels, found that when a dog received a second injection he proved more susceptible than to the initial injection. This led him to introduce the term "anaphylaxis." Dale, in speaking of this says: "Richet supposed he had found the opposite or antithesis of immunity, and the legacy from that mistake is the name anaphylaxis. This has nothing to be said in its favor from the point of view of etymology; it gives faulty expression to a mistaken conception but usage has established it firmly."

Von Pirquet and Schick in 1905 recognized the importance which the so called antibodies against foreign protein might have in the production of serum sickness. In 1909 Lucas and Gay observed and described a local reaction following subcutaneous injection of horse serum in children. Moss in 1910 drew attention to the value of this immediate cutaneous reaction in determining the presence of sensitiveness to horse serum. Since then the many methods of cutaneous testing now employed have been developed.

In 1909 Auer and Lewis published an article in the Journal of the A. M. A. on "Acute Anaphylactic Death in Guinea Pigs," in which they showed that death was due to acute asphyxia brought about by bronchiospasm and that atropin would lessen or prevent these pulmonary symptoms. The analogy to asthmatic conditions was striking and suggested to Meltzer an explanation of the origin of the disease in man. This was published in 1910, and even at this late date he spoke of anaphylaxis as the opposite of immunity. However, he was right in his main contention because it is today well accepted that hypersensitiveness is the cause of a majority of cases of asthma.

Although we have advanced far from the belief that anaphylaxis is the opposite of immunity, our present conception leaves much to be desired so far as answering completely all of the interesting questions which arise in connection with this fascinating study. There are two main theories, the humeral and the cellular. These have as their main difference the location in the body of the reaction. The supporters of the humeral theory hold that the reaction takes place in the blood stream and is in the nature of an antigen-antibody reaction. There have been advanced three main explanations of what occurs. First, that there is formed a specific lysin capable of splitting the protein molecule into a toxic and nontoxic portion. On the second injection this splitting takes place very rapidly and the liberated toxic portion produces the symptoms of a shock. The work of Vaughan has provided a demonstrable chemical explanation of the phenomena. He has shown that every true protein investigated is capable of being split by chemical means into a toxic and nontoxic portion. This toxic fraction when injected in animals produces the symptoms of anaphylaxis. Other workers have shown that the toxic portion is derived, not from the splitting of the injected antigen, but from the splitting of the serum proteins of the individual. Second, that there is formed by the union of the antigen and antibody a nonspecific substance which removes the inhibitory antitrypsin from the sphere of action, allowing the natural tryptic ferment (present in all serum) to act, thereby initiating autodigestion and the production of toxic cleavage products from the animal's own blood proteins. Third, we have the rather vague conception that the effect is brought about by some disturbance of the equilibrium of the colloids of the blood, induced by the action of antigen upon antibody.

The cellular theory postulates the reaction as taking place not in the blood stream but in the body cells themselves. Schultz was the first to show that isolated smooth muscle of a sensitized animal is hypersensitive. This work has been supported by many other investigators. Thus we see all the conditions of anaphylaxis in smooth muscle produced in an excised portion of muscle which has been washed until all traces of blood have been removed. Just within the past year Mackenzie and Baldwin have published their observations on local desensitization in which they show that repeated applications of the protein to which the patient is sensitive to the same cutaneous area will cause the reactivity of the skin to become abolished. This exhaustion appears to be specific. They also discuss the possibility that this is a true local desensitization. These observations would tend to add weight to the contention that the site of the reaction is in the cells themselves, the repeated applications using up the antibodies attached to the cells in that particular area and resulting in a loss of the reaction.

On the whole, the evidence collected to date appears to favor the cellular theory. The explanation of what occurs in the body cells to produce this condition may be along two general lines, according to Dale. The first he calls the proteolytic theory—the union of antigen and antibody producing a cleavage of body proteins which results in the production of toxic derivations. The second, which he calls the physical hypothesis, deals with a disturbance of the colloids or the formation of substances of the nature of histamin or of histamin itself, which we know produces the symptoms of anaphylaxia when injected in animals. Of how these poisonous substances act upon the living cells to produce the condition we are considering we know nothing.

According to the cellular theory, in a sensitive animal the antibody is fixed to the cells of the body, and on second injection a reaction takes place in the cells, producing the characteristic symptoms. If, however, there is in addition to the cell-fixed antibody an excess of antibody in the blood, the antigen is fixed by this excess before reaching the cells and the condition is one of immunity and not of hypersensitiveness. Thus it would seem that anaphylaxis is a phase of immunity in which the antibody has a peculiar distribution. Bordet calls it an accident in the course of the defense. Dale states that it is the proteins which give to a species their distinctive biochemical character, and that it is the proteins of other species in particular against which this defensive system of anaphylaxis and immunity is prepared. Furthermore, the danger to the individual of the anaphylactic state is largely the effect of the purely artificial conditions which we impose by the use of hypodermic needle, by means of which we bring a foreign protein into the circulation with a rapidity which no natural method of absorption could achieve.

The symptoms of anaphylaxis are very numerous and varied, and only the chief ones will be mentioned. Under local symptoms we have hyperemia, edema, and vesicular or pustular eruptions.

The general symptoms include lowered temperature, lowered blood pressure, delayed coagulability of blood, leucopenia, dyspnea, pains in chest and extremities, and cyanosis. Far more important than any mere recital of symptoms is the explanation of the causes acting to produce these manifestations. Roughly speaking, all of these symptoms may be explained on the basis that the fundamental action in anaphylaxis affects two structures—first, the smooth musculature, which is stimulated to contraction; and second, the endothelium of the capillaries, which are poisoned, producing a paralysis of the capillary circulation.

The mode of sensitization involves so many factors that while at first glance it might seem easy of explanation, it is really very difficult of interpretation. Even in experimental sensitization artificially produced in animals there is a vast difference in the ease with which different species may be sensitized, and even in the same species a difference in the reaction to sensitization to different proteins. However, we are not so much concerned with artificial sensitization as we are with cases of spontaneous sensitization occurring in man. The spontaneous cases, as a matter of convenience, will be divided into those inheriting sensitiveness and those acquiring it later in life. The question of heredity has been extensively investigated by Cooke and Van der Vees. They found conditions probably anaphylactic in nature in the family history of 48 per cent of 504 sensitization subjects, while in 76 normal persons this history was obtained in only 24 per cent. The clinical form in children, however, is apt to differ from the parent, and it is to be concluded that sensitized individuals transmit to their offspring not their own specific sensitization, but an unusual capacity for developing reactivity to any foreign protein. Sensitization is inherited, according to Mendelian laws, as a dominant trait.

The methods by which sensitization may be acquired are various and only partly understood. Probably in children the most common route is through the gastrointestinal tract. Talbot, Schloss, Worthen and others have shown that the intestinal tract of normal infants is usually impermeable to undigested protein, but in enteric disorders foreign proteins may be absorbed in an undigested or partly undigested state and that the absorption of these proteins can render the patient anaphylactic. Absorption through the nasal mucosa, conjunctiva and respiratory tracts may occur. The bacterial proteins to which some patients are sensitive may be absorbed from any part of the body in which the bacteria are found, such as sinuses, bronchial tubes, or abscesses in any portion of the anatomy, especially those of a chronic nature. Again, we may have the absorption into the blood stream of the protein of some of the animal's own organs, rendering the animal sensitive to this particular protein. Also, sensitiveness may occur through the injection of protein substances hypodermically for purposes of therapy.

Longcope points out the following important differences in the cases showing spontaneous sensitization and those rendered artificially so: First, the degree is greater in spontaneous cases. Second, sensitization is usually multiple in spontaneous cases. Third, the method of sensitization is problematical in spontaneous cases.

The anaphylactic theory has been used to explain the cause of a great many physiological and pathological conditions, most of which have as their basis no proofs, experimental or otherwise. There will be no attempt to enumerate the diseased conditions which might be considered as having an anaphylactic basis. However, in a brief way two or three conditions which come under the jurisdiction of our specialty, and in which there is very strong evidence of their anaphylactic origin, will be briefly reviewed.

In 1909 Elschnig advanced the theory of anaphylaxis to explain the etiology of sympathetic ophthalmia. This theory, if correct, would explain many conditions which are left unaccounted for in the ciliary reflex, bacterial or cytotoxic theories. For this conception to be even possible, three fundamental factors must be proven. First, does uveal tissue possess antigenic properties in the homologous animal? Second, that this protein is organ specific. Third, that this protein is not species specific.

Organ specificity implies that in an organism sensitized to a given organ or tissue, anaphylactic intoxication may be elicited only by reinjection of the same organ or tissue, with little regard to the species from which it is obtained. Species specificity means that the sensitization is for a certain species without regard to the organ. Elschnig proved that uveal tissue is capable of acting as an antigen, that it is the pigment of the uveal tract which is responsible for these properties, and that the pigment is organ-specific and not species-specific. That is, he proved that the uveal tissue possessed the fundamental characteristics to make the anaphylactic theory a possibility. Although some of his findings were substantiated by the German workers, it was never repeated as a whole until the work was taken up in this country by Alan Woods. The anaphylactic theory of sympathetic ophthalmia owes more to the careful, painstaking, experimental work of this champion than to any other single individual. His work is a masterpiece of experimental medicine. Not only has he repeated and substantiated the work of Elschnig, but by animal experiments has demonstrated the following points.

1. The eyes of a generally sensitized animal, when perfused with normal defibrinated blood containing specific antigen, show local anaphylactic phenomena.
2. Uveal tissue exercises its antigenic properties through this pathway.
3. Uveal pigment absorbed from one eye produces a hypersensitiveness of the second eye, and a subsequent perfusion produces ocular anaphylactic phenomena.
4. Experimentally, by anaphylactic means with homologous uveal tissue as antigen, sympathetic irritation and sympathetic ophthalmia have been produced in dogs.

This is but stating the conclusions of his most interesting work. No more can be attempted in a paper of this length. Just within the past year clinical work on immune reactions in disease or injury of the uveal tract in man has been published by the same author. In this work, using cows' uveal pigment as an antigen, it was found that the complement fixation was positive in all cases of injury or wound of the uveal tract in which there had been normal healing with no sympathetic disturbance. These persons are immune to uveal pigment. In contrast to this in cases of sympathetic ophthalmia the complement fixation tests were all negative, showing a lack of immunity. In these cases something has gone wrong with the mechanism which normally would produce immunity, and a hypersensitive state exists. It is quite probable that in the future a method of testing by means of the complement fixation will be developed which will enable us to decide in case of doubt whether an injured eye should be removed because of the danger of sympathetic ophthalmia. If the test is positive showing immunity there is no need to remove the traumatized eye for this reason. We may also develop methods of producing immunity in cases of eye injuries and thus avoid the danger of sympathetic irritation in the fellow eye.

Another condition having an anaphylactic basis and which properly belongs in the domain of our specialty is hay fever. At Cornell and Bellevue Medical Schools hay fever clinics have been established in connection with the nose and throat departments.

Blackley, as early as 1853, associated this condition with the inhalation of pollen and showed definitely that the instillation of certain pollens in the nose and eye produced in hay fever patients edema and congestion of the mucous membrane with lacrimation. He also made the observation that the pollen grains rubbed into the scarified skin produced itching and local edema. Dunbar in 1903-1904 showed that this was a specific reaction, and later Weischardt brought out the fact that it was due to the protein of the pollen. From this it was only a step for Wolff-Eisner in 1906 to suggest that hay fever had its origin in sensitization to proteins of various pollens, and later to apply this principle to the explanation of the origin of the urticarias succeeding the injection of certain foods.

It is only desired to treat hay fever from the viewpoint of therapy in this paper. Two questions arise in the treatment of these cases. First, what pollen is causing the hay fever in any particular case? Second, what is the best method of desensitization?

To decide what pollen is responsible for a case of hay fever we use the cutaneous test. The interdermal test may also be used, but is more difficult to perform and too sensitive for practical use. The cutaneous test is simplicity itself. A linear cut one-eighth of an inch long is made on the flexor surface of the forearm, care being taken not to draw blood. The pollen against which the patient is being tested is added and moistened with $\frac{n}{10}$ sodium hydrate. As many of these are made as there are pollens to be tested against, and one extra as a control to which only sodium hydrate is added. At the end of half an hour the forearm is cleansed and a reading made. A distinct wheal one-fourth inch in diameter or larger denotes a positive reaction, and shows that the patient is sensitized to the protein of that pollen. It may or may not be the cause of the hay fever. To decide which pollen is causing hay fever in case the patient is sensitized to more than one, we must answer the following questions:

1. Is the patient in contact with this pollen?

2. Does the time of pollination of this plant correspond to the time the patient has hay fever? A patient would not have ragweed hay fever in June, even if sensitive to ragweed.

3. Is it a wind-pollinated plant? Almost all cases of hay fever are caused by wind-pollinated plants. In addition to being wind-pollinated the pollen must be light and capable of being carried long distances. Corn is a wind-pollinated plant with a profusion of pollen, but it is heavy and only carried a short disance and therefore is not of much importance in the production of hay fever.

What pollens shall we use in testing a patient? Those which are wind-pollinated, which produce pollen at the time the hay fever is present, and are native to the locality in which the patient resides. The plants which are responsible for hay fever have been quite well worked out for the eastern part of the country and also for the Pacific coast, and just within the past two months Watson and Kibler have published an article dealing with those of Arizona and the Southwest. To my knowledge nothing has been published dealing in a conclusive way with those of the middle states. This is needed, for personally I have had at least six or eight cases of hay fever coming on during the month of August in which I was unable to find the responsible pollen, although they were tested with every one of the late summer and fall pollens on the market. It is hopeless to treat these cases when the pollen causing the attacks is unknown. The classification given by Watson and Kibler is particularly good and aids very materially in the problem in this state. Practically for fall and late summer types of hay fever the following pollens are sufficient in most cases: Ragweed, timothy, redtop, goldenrod, sunflower and corn.

Desensitization by nonspecific protein substances so far has not proved successful. The idea that all plants belonging to the same family could be sensitized by injections from any member of the family has not worked as well in practice as in theory. Shotgun doses of pollen have been disappointing in a great many cases. The best method to date, according to the men who have done the most work along this line, is to desensitize by using extracts of the specific pollen to which the patient is sensitized, beginning these injections six to twelve weeks before the usual time of attacks. The results are not by any means perfect in all cases, but as more is known of the underlying factors of the conditions they will improve.

There are a number of other conditions which might be considered in this connection, such as asthma caused by sinus disease, the deafness which sometimes, associated with sympathetic ophthalmia, may have an anaphylactic basis, as the lining membrane of the labyrinth contains pigment similar in type to that found in the uveal tract. However, they will not be discussed at this time.

In looking back over a number of years and watching the slow accumulation of knowledge in this and other fields, one is struck with its resemblance to the weaving of a tapestry. At first there is no pattern, then slowly one bit is added and other, then some of the threads have to be taken out and replaced by others, and so the plan develops. We are now at the point where we are beginning to get glimpses of what the completed work will resemble. Many details remain to be worked in, and we will have to go back and correct some of the earlier work; however, in a rough way we are able to see at least the general plan of the design.

SPHENOPALATINE GANGLION NEUROSIS.*

Claude T. Uren, M. D., Omaha, Neb.

I wish to include under the subject of this paper certain sensory, motor, and sympathetic disturbances and their relation to pathology in the sphenopalatine ganglion and the post-ethmoidal and sphenoidal cells.

To begin with a review of a few points in the anatomy of this area is in order.

The sphenopalatine, nasal or Meckel's ganglion is situated in the spheno-maxillary fossa, close to the sphenopalatine foramen and is suspended from the maxillary division of the fifth nerve. The ganglion lies high in the fossa and is frequently in very close relation to the sphenoidal, posterior ethmoidal, and maxillary sinuses and the external wall of the nasal cavity.

The floor of the sphenoidal sinus forms the roof of the spheno-maxillary fossa unless a large posterior ethmoid cell invades the body of the sphenoid at the expense of the sphenoidal sinus in which case the ethmoid cell would be directly over the fossa. The anterior wall of the fossa is the posterior wall of the maxillary sinus. The posterior wall of the fossa is formed by the greater wing and pterygoid process of the sphenoid bone.

It is not uncommon to find the sphenoidal sinus extending down into the pterygoid process and greater wing in which case the sphenoidal sinus would form part of the posterior boundary of the fossa.

Again the sphenoidal sinus may extend downward and forward to form the upper half of the anterior boundary of the fossa. Since the ganglion is always found high in the fossa, it is in most instances bounded above by the thin wall of the sphenoid and posterior ethmoid cells and anteriorly by the wall of the maxillary sinus—at times in front and behind by the sphenoidal sinus if this sinus extends downward and forward or is prolonged downward into the pterygoid process and greater wing.

The ganglion is found just posterior to and above the posterior tip of the middle turbinate. According to Sluder, it may be found from two to nine mm. from the general membrane of the nose.

The sphenopalatine ganglion is a sympathetic ganglion and has three so-called roots which convey nerve fibres to and from the ganglion. The motor root consists mostly of visceral motor fibres of the pars intermedia of the facial nerve. They become component fibres of the great superficial petrosal nerve and the Vidian nerve. The great superficial petrosal nerve arises from the geniculate ganglion of the pars intermedia of the facial nerve in the facial canal. It joins with the great deep petrosal nerve to form the Vidian nerve. The great deep petrosal nerve is the sympathetic root of the sphenopalatine ganglion and is in a sense a direct extension of the carotid plexus. It may be considered the connecting link between the cervical sympathetic ganglion and the sphenopalatine ganglion.

The sensory root of the sphenopalatine ganglion consists of two or three short trunks connecting the ganglion with the maxillary nerve.

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The branches of the ganglion are orbital, palatine, pharyngeal and nasal. They contain vasomotor, secretory, and sensory fibres.

The sphenoidal sinus lies in the body of the sphenoid bone in a central position in the skull. It varies greatly in size and shape and it is this variation that brings them at times in close relation to important nerves.

The cavernous sinus containing the third, fourth and sixth cranial nerves is found just external to and above the body of the sphenoid bone. If the cavernous sinus is small these nerves are in close relation to the sphenoidal sinus. The first and second and sometimes the third division of the fifth nerve are in close relation to the sphenoidal sinus laterally. The optic nerve passes over the sinus and is separated from it by a thin layer of bone.

A sphenoidal sinus of large size, extending outward, may encroach upon the foramen rotundum containing the maxillary nerve or the foramen ovale containing the mandibular nerve, or the sphenoidal fissure containing the ophthalmic division of the fifth, third, fourth, and sixth nerves. It has also been found in close relation to the Gasserian ganglion.

If the sphenoidal sinus is prolonged downward it soon comes in close relation with the Vidian nerve. In fact the pterygoid canal containing the Vidian nerve is frequently found in marked relief upon the floor of the sinus and in some instances dehiscences may be present which leave the nerve exposed in the sinus.

A marked downward prolongation of the sphenoidal sinus brings the Eustachian tube in close touch with the sinus.

The neuralgic syndrome of the sphenopalatine ganglion neurosis as described by Sluder consists of a pain beginning at the root of the nose in and about the eyes and the upper jaw and teeth and extending backward to the temple and about the zygoma to the ear producing earache and most severe about five cm. behind the mastoid; then back by way of occiput to the shoulder blade and shoulder. Accompanying this there may be an aching throat or an itching in the soft palate or a feeling that the teeth are too long or a metallic taste or a scintillating scotoma. The arch of the soft palate is higher on the affected side. There may be a stuffy feeling in the ear due to the Eustachian tube which is not opened properly by the levator palati.

The sympathetic syndrome consists in a sudden severe fit of sneezing, accompanied by profuse lachrymation and hot water discharge from the nose. A terrific cold in the head. The conjunctiva is swollen and red and the pupils are dilated. This may be accompanied by asthma.

The acute attacks of neuralgic and sympathetic syndrome may and often do become chronic in which case there are migraine of the lower half type and chronic vasomotor rhinitis and asthma.

Diagnosis: If the lesion producing the syndrome is in the ganglion, cocainization of the ganglion will relieve the symptoms. The nasal mucosa lying over the ganglion may appear congested.

Treatment: Sluder advises application of 2% silver nitrate over the ganglion. In the more severe cases he advises injection of the ganglion with phenol and alcohol. Charles H. Frazier of Philadelphia, in the Annals of Surgery of September, 1921, describes an external operation for the removal of the ganglion. In my own work the milder cases are treated by application of cocaine followed by 2% silver nitrate over the ganglion. Argyrol tampons well up in the nasal slit seem to the control the milder sympathetic syndrome.

The more severe and chronic forms I believe are due either to irritation of the ganglion itself from an infected sphenoid and posterior ethmoid or to post-ganglionic irritation of the nerves from an empyema or hyperplasia of the sphenoid and posterior ethmoid cells. If the symptoms are due to post-ganglionic irritation cocainization of the ganglion will not relieve the symptoms. Hyperplasia of the sphenoid and posterior ethmoid cells may produce symptoms identical with the syndrome of the sphenopalatine ganglion. The lower half headaches and the sympathetic vasomotor rhinitis and asthma.

Hyperplasia may be found both in the soft tissue and the bone. If it is well advanced in the bone, there is a narrowing of the canals and foramen containing the Vidian—first, second and third divisions of the fifth nerve and the optic nerve.

The diagnosis of hyperplastic posterior ethmoiditis and sphenoiditis has been made somewhat easier since the use of Holmes' naso-pharyngoscope. I use the naso-pharyngoscope routinely in my office examinations and have come to recognize gross changes in the post ethmoidal sphenoidal area. Hyperplastic changes in this area appear as in the anterior ethmoid region upon anterior rhinoscopy. The posterior end of the middle turbinate is wet and hyperplastic. The plica septi is likewise wet and hyperplastic. If this hyperplasia is not so marked that a view of the anterior wall of the sphenoid and area around the sphenoidal osteum is possible, this area will appear hyperplastic. If there is secretion present in the sphenoidal sinus it will be seen coming down over the posterior border of the vomer and the plica septi. If from the posterior ethmoid cells it will be seen coming down over the posterior end of the middle turbinate. If thick pus is present, it is much more easily seen. Polyp formation may occur and the polyps are seen in the nasal slit.

X ray examinations in these cases have been disappointing in so far as aiding in diagnosis. However, the size and position of the sphenoidal sinus can be seen in a good plate.

A common complication of hyperplastic posterior ethmoidal sphenoiditis is neuritis of the 8th nerve as evidenced by dizziness and nerve deafness.

Radical operation on the posterior ethmoidal sphenoidal area is the only hope for cure of these cases.

I operate under cocaine anaesthesia: First removing the middle turbinate; then removing the ethmoid labyrinth with Gruenwald forceps biting out every available cell. I remove the anterior wall of the sphenoidal sinus by first enlarging the osteum with a curette and then biting away the anterior wall with sphenoidal forceps.

The complete operation bilateral can be done at one sitting with very little shock to the patient.

Case No. 1—Mrs. O. L., age 35. Chief complaint: Asthma and shortness of breath. Began ten years ago with a cough which was quickly followed by attacks of asthma. Has been growing gradually more severe. For past few winters has been entirely incapacitated. Been under treatment including change of climate. Attacks controlled by adrenalin. There has been a profuse discharge from nose into throat for ten years. Periodic headaches over root of nose and in temples. Difficulty in hearing—severe attacks of vertigo.

Examination: Hyperplasia both middle turbinates and posterior ends. Hyperplasia plica septi. Large hyperplastic mass in front of opening of right sphenoidal sinus. Muco purulent discharge coming from this mass down over vomer. Both maxillary sinuses dark on transillumination and cloudy on X ray.

Tonsils removed. Muco pus in naso pharynx. Bronchial rales over chest. Ear examination showed moderate nerve deafness and disturbed Barany.

Operation July 1921. Puncture and irrigation both maxillary sinuses. Antrums irrigated for two weeks. No pus after ten days. Patient went home slightly relieved. Returned in two weeks. No improvement. Complete posterior ethmoidal sphenoidal operation. Pus found in both sphenoids. No asthma since operation. Went through the winter in perfect comfort. Caught a severe cold with return of discharge but no asthma. Discharge cleared up under irrigation of sphenoids. Chest clear.

Case No. 2—Mrs. A. D. M., age 38. Periodical attacks of asthma for past three years. These attacks come on following a cold in the head. Does not complain of nose trouble. Has tonsillitis at times.

Examination: Hyperplasia posterior ends of both middle turbinates and ethmoidal sphenoidal areas. Frontals small. Pus and cheesy material in both tonsils.

Operation: Removed both middle turbinates. Ethmoidal sphenoidal operation bilateral.

Right sinus very large extending over to left side. Left sinus small but contains pus. Ethmoids small hyperplastic. No asthma since operation. Chest clear.

Case No. 3—Miss E. W., age 27. Chief complaint headaches. Pain begins in root of the nose and around left eye. Goes over temple to the left mastoid area, stiffness of neck. Has had headaches for twenty years. Headaches are constant but there are times when they are almost unbearable. Patient is a nurse and has had to leave a case when the severe attacks came on. They usually begin about three o'clock in the morning.

Examination: Hyperplasia plica septi left side. Muco pus over posterior border of septum. Anterior wall of sphenoidal sinus red. Mucosa over ganglion hyperemic. X ray examination negative except to show a very large sphenoidal sinus extending well down. Cocainization of ganglion relieved the pain.

Operation: Removal of middle turbinate and posterior ethmoidal sphenoidal operation. No headache since the third day after operation.

Case No. 4—Dr. F. J. S., age 44. Chief complaint. Headaches most pronounced about 5 cm. behind the mastoid process. These appeared about 1 year ago and have been getting worse. Has had hay fever for years, also a persistent discharge from the nose into the throat. Has had several operations including a submucous resection, removal of both inferior turbinates and tonsillectomy.

Examination: Muco-pus from sphenoidal sinuses. Hyperplasia posterior ends of both middle turbinates and plica septi. Muco-pus in nasopharynx. Both sphenoids cloudy on X ray examination.

Operation. Enlarging sphenoidal ostia. Without removal of middle turbinates.

This operation was done because there had been so much mucous membrane removed from the nose in previous operations. Relief of symptoms for two months when they returned as severe as before. Patient consulted Dr. Sluder who performed a complete operation with relief of symptoms.

Case No. 5—Mr. H. F. B., age 52. Chief complaint, headaches. Headaches begin at the root of the nose, pass back over the left temporal region to a point about five cm. behind the mastoid then down to the shoulder and arm. He has difficult nasal respiration and difficulty in hearing. Has a chronic discharge into the throat.

Exemination: Deviated septum to left. Mucopus coming down over posterior septal border. Naso pharynx and pharynx covered with thick pus. Cocainization of ganglion gives no relief. X ray negative. Nerve deafness.

Operation: Submucous resection of the nasal septum. Removal of the anterior wall of sphenoidal sinus. Sinus filled with pus. Very large sinus extending well down into pterygoid process. Headaches relieved.

THE EYE AND ITS RELATIONS TO INTERNAL MEDICINE.*

W. L. Albin, M. D., Lincoln, Neb.

In the routine examination of the sick, it is safe to say no part of the organism is so often neglected as is the eye. Someone has said, "the eye is the window of the soul"; it can be said with even more accuracy that the eye is the window of the body. Doubtless all will agree that no organ with an important function is more accessible to objective and subjective examination; nowhere is it so easy to observe correctly the physiology and pathology of an important part of the body; the action of extrinsic and intrinsic muscles can be seen and measured with precision; the retina is rightfully considered a part of the brain and the optic nerve is in reality a cerebral tract. The nearness of the eye to the cranial origin of its nerve supply makes it less susceptible to reflex nervous phenomena, and hence renders the clinical manifestions more dependable.

Present day diagnosis and the demand for a thorough understanding of the pathology make the assistance of an ophthalmologist more necessary than formerly. Many obscure constitutional dyscrasias present ocular involvement, the appreciation of which assist greatly in a diagnosis of the disease. We may confidently expect the time to come when the ophthalmoscope will, like the stethoscope, be carried to the bedside; in fact in some European countries it is necessary to demonstrate a workable technic in its use before a candidate is licensed. X ray, microscopic and some of the other laboratory examinations make it necessary that one devote his entire time to that particular field, but it is within the province of all those engaged in treating the sick to employ eye signs and symptoms as diagnostic helps.

All ocular troubles are, with the exception of trauma and localized exogenous infections, due to pathologic changes of endogenous origin as a result of toxic, biochemic, and septic changes in the cell, and are important guides to the general morbific process taking place in the body.

It must suffice here to mention briefly a small classification of general diseases, and cite illustrations under each, having important eye symptoms which point directly to the diagnosis, and helping in many instances to give a fairly accurate prognosis.

INTRACRANIAL DISEASES.

Brain Tumors: It is conservatively estimated that optic neuritis, usually under the form of choked disk, is present in 70% of all cerebral neoplasms. It is the more important that this symptom be sought because of the fact that a brain growth or pressure may exist for a long time without presenting any other positive indication of intracranial disease; even the headache may be wanting; the vision in some cases is normal and no diminution is noted until optic nerve atrophy begins. Tumors of the posterior fossa, because of the tightly stretched, unyielding tentorium, most frequently cause choked disk. On the other hand, the fact that basal tumors, as those of the hypophysis, seldom give this change i nthe nerve head is explained by the probability of such growths blocking the orifice by which the intervaginal space of the optic nerve opens into the cranial cavity.

NERVOUS DISEASES.

Tabes Dorsalis: The earliest and by far the most common symptom, the phenomenon of characteristic retention of accommodation and convergence, and the absence of the reaction to light, the so called Argyll-Robertson pupil, which is usually bilateral, is present in such a large percentage of these cases (75%) that for a long time it was considered pathognomonic; however it has been observed in other cerebral diseases as well as in a very small percentage of other diseases of the nervous system. Another common symptom is optic nerve atrophy manifested by a slow but gradual diminution of vision, which always affects both eyes, although not necessarily both at the same time. These ocular symptoms, together with positive spinal fluid findings, make the diagnosis of this often confusing disease a matter of simplicity.

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INFECTIOUS DISEASES.

Much permanent damage is done to sight by the failure to observe eye complications in the various exanthematous, acute and chronic infectious morbidities. In the anxiety experienced because of the seriousness of the primary disease, it is easy to lose sight of the ocular involvement that may supervene, and since the pain is often slight or absent, too frequently, the possibility of serious eye trouble is not considered. Syphilis, rheumatism (or the various pyogenic infections), gonorrhea, tuberculosis, more rarely scarlet fever, influenza, diphtheria, erysipelas, pneumonia, typhoid, ulcerative endocarditis and variola, are some of the diseases that may be complicated by paralysis of one or more of the external ocular muscles; corneal inflammations; iridocyclitis; chorioiditis; retinitis and optic nerve atrophy.

Small Pox: During the eruptive stage, when the lids are greatly swollen and if the patient is kept in a darkened room, as often happens, it is possible to have a well developed keratitis or iritis before it is discovered, unless daily inspection is practiced. In fact before compulsory vaccination was the law, over so much of the civilized world, it was one of the most frequent causes of blindness. In France and Prussia it was responsible for 35% of all blindness.

DISEASES OF METABOLISM.

Diabetes: This is one of several diseases, under this heading, which show striking secondary ocular pathology. The external eye muscles, cornea, iris, lens ciliary body, vitreous, chorioid and optic nerve are subject to involvement. The eye ground when involved presents a characteristic picture; and this symptom is of value from a prognostic standpoint. According to Adam and Foster, when there is diabetic retinitis, apoplexy supervenes in one third of all such cases, and fifty per cent of these die within two or three years.

DISEASES OF THE KIDNEY.

Nephritis: In this the most common eye complication is albuminuric retinitis which is, of all the inflammations of the retina, the one best defined. It is present, in some degree, in twenty per cent of all cases of albuminuria. Less characteristic changes are retinal hemorrhages, hemorrhagic retinitis, and optic neuritis even including choked disk. Since brain tumor, albuminuric and diabetic retinitis and arteriosclerosis may present much the same picture in the fundus, it is necessary to have the laboratory findings to make a differential diagnosis. When the eye is thus involved in a kidney disease, the prognosis is extremely grave for it is commonly stated that 85% of all these die within two years. In contradistinction to the fundus findings in nephritis we have those of uremic amaurosis. The history is that without warning everything becomes dark and in a few hours blindness is complete. This is terrifying to all concerned, but when it is known that the pupil reacts normally to light, as it does in most cases, and that throughout the eye is anatomically normal, then it is reasonably certain that the lesion cannot be in the eye or optic nerve, but higher up in the brain which is poisoned by some foreign substance in the blood.

DISEASES OF THE DIGESTIVE TRACT.

Dental Infections: The layman has come to understand that focal infection in the teeth is responsible for its share of rheumatism, but as yet it is hard to make him believe that serious ophthalmic diseases are complications of dental inflammations and the accompanying disease of the oral mucous membranes. The various structural diseases of the eye, as well as such functional disorders as asthenopia, and insufficiency of accommodation and convergence are, in a definite percentage, due to dental infections. In this connection it is well worth remembering that in any intestinal intoxication, from which there is absorption of the incompletely oxidized products of digestion, we have good reasons to think that uveal inflammations, including glaucoma, are occasioned by it.

DISEASES OF THE ENDOCRINE GLANDS.

Goitre: All are familiar with the eye symptoms of exophthalmic goitre; but it should be remembered that this characteristic sign is present, occasionally, in other than Basedow's disease. It is sometimes noted in aneurism, inflammations and tumors of the orbit; in atheroma with dilatation of the arteries and in chronic cyanosis of the head; Marina saw it in gout and aneurism of the basilar arteries; Fr. Muller points to it in some cases of lead poisoning, as a toxic vasomotor condition. The staring look with diminished frequency of reflex winking, Stellwag's sign, occurs early and is rarely absent; however, this is present in maniacal conditions, hysteria, tabes and pregnancy. Lack of agreement between lowering and raising plane of vision, von Graefe's sign, is not always present nor always easily elicited. This is occasionally present in mydriasis and miosis and other symptoms of irritation of the sympathetic. In degeneration of the hypophysis cerebri, the eye suffers indirectly due to the pressure of the enlarged gland upon the optic nerve, and the resulting temporal hemianopsia may be the first symptom that gives any indication of hypophyseal disturbance.

DISEASES OF THE CIRCULATORY SYSTEM.

Arteriosclerosis: Thrombosis of the central retinal vein, usually resulting in total blindness, is sometimes the first thing that forces the victim to seek medical aid. A gradual increase in arterial tension is, in some cases, the predisposing cause of glaucoma, and this grave complication will exist until the vascular tension is brought nearer to the normal. Some of the most annoying asthenopia, so called weak eyes, annoying alike to both patient and ophthalmologist, when due to increased pressure will resist all eye treatment, refractive and otherwise, and will yield only when treated for the underlying cause. "In retinal hemorrhages," say Adam and Foster, "the most important cause is arteriosclerosis, and in these they are of very great prognostic value because, in at least 50% they are forerunners of hemorrhages into the brain." Therefore, in this sometimes exceedingly chronic disease, a very accurate prognosis can be made whenever the eye symptoms are given their true valuation.

DISEASES OF THE RESPIRATORY SYSTEM.

Tonsils: Like the teeth these offenders lately have come in for so much publicity that it is easy to believe them guilty of any crime. Any one doing eye work can give a long and varied list of obstinate ocular affections which have been the rounds of many specialists, seeking relief and finding it only after complete enucleation of the tonsils. The patient may have no reason to think that there is focal infection in the throat, never having had an acute tonsillitis, or any of the other numerous general and focal symptoms that diseased tonsils usually carry with them.

POISONS.

The medical profession is so thoroughly acquainted with the tragic danger to vision in the drinking of improperly made liquor, that no propaganda against it need be carried on within its ranks; but, by precept, the layman learns slowly, and it is our duty to impress upon the general public the risk involved to the sense of sight while indulging in this popular pastime. Other exogenous toxic substances cause eye symptoms which are of value from a medico-legal standpoint, as well as diagnostic. Belladonna, cocaine, and often adrenalin, dilate the pupil, while the opium group contracts it. These may be important evidences as to the cause of death by foul play or suicidal intent. There are many drugs with subtle action, the abuse of which, or for which there may be an idiosyncrasy, capable of causing damage to the eye that will be permanent; and there are toxic substances that cannot be entirely avoided by those who work in the trades, arts and sciences, which have a selective action on the muscles and nerves of the eye. Nystagmus is often caused by ether; more rarely by alcohol, lead, carbon monoxide gas, morphine, cocaine, sulphonal, arsenic, quinine, and ergot. Toxic amblyopia is at times the end result of large doses of quinine, felix mas, some of the coal tar products, and the abuse of tobacco. Acute ophthalmoplegia is occasionally seen as a complication of poisoning by alcohol, lead, and carbon monoxide gas.

LESS COMMONLY SEEN DISEASES.

Encephalitis Lethargica: Now that this disease is being more recognized the eye symptoms should be kept in mind. They are, according to Martin Bartels, in the order of their appearance: ptosis, lack of accommodation, (pupil variable size) vertical but no lateral paralysis of conjugate vision; occasional nystagmus and lowering of visual acuteness. P. J. Waardenburg, of Holland reports two cases of his own and gives a complete resume of the eye findings. He says: "The eye symptoms have proven so helpful in fixing the diagnosis that they were esteemed to be the most important; and especially because the disease is characterized, not only by the frequency of well known isolated or combined nervous paralysis, which we meet in other infectious or nervous diseases, because supranuclear disturbances of the fibres or centres of associated movements often preceding the other symptoms, were noted."

Myasthenia Gravis: While this malady is rare it is not as infrequent as was formerly thought. Up to 1912 only 250 cases had been reported but since that time many more have been diagnosed. Dana, in the Journal of the A. M. A. for Jan. 28, 1922, in "A Therapeutic and Clinical Study" of 14 cases of his own says: "I do not think that the disease can with certainty be diagnosed unless eventually it shows bulbar or eye symptoms. The general clinical and laboratory symptoms may be so confusing that the presence or absence of the ptosis or diplopia and paralysis of the external eye muscles may be the aids that will decide the diagnosis."

CONDITIONS AFFECTING SIGHT THAT GIVE NO EVIDENCE OF PATHOLOGY IN THE FUNDUS.

Some of these confusing disturbances are: Amblyopia, blepharospasms, limitation of visual field and spasms of the ocular muscles of hysterical origin; a congenital disturbance of vision for color, or total color blindness; day blindness and night blindness; amaurosis due to malaria, loss of blood, abuse of drugs, trauma of visual centres, uremia and diabetes. An ophthalmoscopic examination will reveal the fact that these are for the internist, the brain surgeon, the neurologist or the psychiatrist.

The foregoing are some of the many commonplaces, met alike by the ophthalmologist and all those engaged in treating the sick.

The desire to report the following cases is not due to the fact that they are unusual but for quite the opposite reason.

Miss R. C., age 23, had been, since school age, nervous, undernourished and a victim of chorea at the age of fourteen. When twenty she was sent to Colorado because of a diagnosis of pulmonary tuberculosis. Failing to improve she came to Nebraska and was treated for Bright's disease and gall bladder infection. Hearing of a friend who had obtained relief from similar symptoms by wearing glasses, she came in for refraction.

The correction of a moderate degree of compound hyperopic astigmatism resulted in the disappearance of all her symptoms, and she has continued in perfect health for a year and a half.

Mr. A. C., age 41, always in good health until after an attack of typhoid fever which he had 12 years ago. Soon thereafter he began having headaches which gradually increased in severity and frequency until they occurred three or four times a month and were usually accompanied by nausea. He had consulted several doctors and all assured him that there was nothing organically wrong that could be responsible for his distress. He concluded that a change of glasses might arrest headaches. With his correction, vision R. and L. was 20-20. He was refracted under homatropin and accepted +.75 R. and L., only .25 diopter more than his old lenses, with vision R. and L. 20-15. Ophthalmoscopic examination revealed a wide but not complete glaucomatous excavation of each disk. As was to be expected there was no optic nerve atrophy. Ten days later, after use of pilocarpin, tension in each eye was 30. The daily use of miotics has been sufficient to keep him comfortable for nine months.

Mrs. E. C. C. comes for change of glasses, age 31. Never remembers time when she felt well. Has had almost yearly attacks of peritonsillar abscess since age of fifteen until three years ago. There is a history of two attacks of acute cholecystitis within the last year and a half. Is unable to read or do close work without pains in eyes and head. The sinuses are normal. Both tonsils discharge pus. Has worn for six years R. eye+.25 cyl. at 90, L. eye+.12 cyl. at 90. Manifest vision is 20-20+each eye and same vision is obtained with her correction. Muscle tests and visual field normal. Under atropin, retinoscopic and ophthalmoscopic examination is negative. Her vision is 20-20+each eye and will accept no correction. Patient was advised to discard glasses and to consult her family physician and dentist and to have tonsils removed.

DISCUSSION.

J. M. Banister, M. D., Omaha: The subject which the essayist has just presented is of great practical value to the general practitioner as well as to the oculist. I am certain of this fact from many years of practical experience in the government service in general, as well as in special practice.

I shall touch upon one point primarily, which the essayist did not bring prominently forward. In many cases of pregnancy there may occur a series of changes around the optic nerve, which, to the practiced ophthalmoscopist, afford danger signs in the case of the mother as well as of the child. Frequently with little or no diminution of visual acuity an appearance of haziness will become manifest around the optic nerve head.

If this condition occurs in the early stage of pregnancy the indications are that there is a toxaemic condition present due to the pregnant state which will lead to most serious results both for mother and child if permitted to continue. The uterus, in the early period of pregnancy in the presence of such condition of the nerve, should be emptied without delay. In case it occurs near the period when the foetus might be expected to be viable, it may be best to delay for the arrival of such time.

The doctor mentioned temporary failure of vision. Auto-intoxication is a very frequent cause in such cases. When a person has suddenly obscured vision, with little scintillating bodies in the field of vision, even when the eye is closed, or the patient is in a dark room, there may be toxemia of intestinal origin. It is not the eye that is at fault. It is the lack of proper circulation in the cerebral centre for vision in the occipital lobe on one or possibly both sides. It has been found that this circulatory interference is due to a spasm, generally of the posterior cerebral artery, which temporarily cuts off the proper blood supply of the centre or centres referred to.

The general practitioner frequently comes up against an alarming proposition in such cases. People want to know at once, "Is this seizure serious?" Frequently there may be a temporary aphasia connected with the attack. If you are called in to see such a case, you must say whether there is cause for anxiety or not. If there are scintillations in front of the eye you can be positive that the affection is a simple thing and is owing to some type of toxaemia, and that it will have a happy outcome. Those cases that are due to organic nerve disease do not have such scintillations.

E. B. Brooks, M. D., Lincoln: There are two or three points I wish to touch upon. The doctor mentioned pituitary disease. I want to point out that pituitary tumor may involve gradually one eye at a time. You may diagnose posterior sinus disease until it is too late. We can help ourselves by remembering that in posterior sinus disease there are apt to be central scotoma for red and green, and enlargement of the blind spot.

I want to emphasize the thought that many of these conditions will be discovered for the first time by the patient coming to you for refraction. For example: One may discover a secluded pupil and on examination of the urine, find a diabetic. Occasionally one sees a corneal ulcer complicating nephritis or some other debilitating disease. On account of lowered resistance of the patient the ulcer in spite of our best efforts is slow in healing. The salicylates, one of our sheet anchors in therapy of these cases are contraindicated on account of their irritative affects upon the kidney, as it is claimed that they increase the albuminuria and the nitrogen content in the blood. Here we have to use our discretion and choose between the lesser of two evils.

Another point in connection with contagious disease is paralysis of accommodation following diphtheria. You will find children complaining of inability to read and asking to have glasses fitted. One may overlook the fact that it is a temporary paralysis of accommodation that will get well in a few weeks or months, and glasses are probably not indicated.

Geo. Neuhaus, M. D., Omaha: I was very much interested to hear what the doctor had to say with regard to the relation between the eye and general diseases. The ophthalmoscope is an instrument which gives us many important indications, often not otherwise obtainable and it were well if it could be used as freely as the clinical thermometer, but many physicians are unable to use it. I should like to make a plea for a simple examination of the eye, which any one can easily make. I mean the testing of the pupil. This is too often neglected by the general practitioner and patients are treated, for instance, for rheumatism when they are suffering from tabetic pains and when the simple testing of the pupils would have revealed the true condition.

With regard to the technique of testing pupillary reflexes, I think it is important to remember that one should not examine the pupils while the patient looks at a bright light. If the patient is facing a bright light, the pupil contracts and it is difficult to see the additional reaction produced by the flashlight which we use in the testing, and in this way one may be led to believe that the pupils do not react to light. Turn your patient away from the window and then observe the pupil in subdued light.

It is not necessary for the pupil to be absolutely rigid when light is thrown into it to constitute a suspicious reaction. Frequently in disease of the central nervous system, the pupils still contract to light, but not as rapidly as normally or they contract only partially. In addition to this diminished reaction of the pupil, we frequently observe that the pupil is not perfectly round, that it shows slight flattening in one place and slight angularity in another. This is very frequently found in cerebral syphilis, brain tumor, epidemic encephalitis and in other conditions. At times one will notice when light is thrown into a patient's eye that the pupil contracts at first and then dilates. I believe this is due to the fact that many patients make an attempt to focus on the light, which brings on an accommodation contraction of the pupil and when they again look at a distance as they should, the pupil dilates. This condition is sometimes misleading as though indicating some pathological condition but a mistake may be easily avoided by cautioning the patient that he must look off in the distance.

Dr. Albin: The point Dr. Banister made is one of great importance to the man practising obstetrics, because occasionally we hear of a prospective mother having lost her sight due to the fact that therapeutic abortion had not been performed quickly enough.

ACUTE OTITIS MEDIA IN CHILDREN.*

Charles G. Baird, M. D., Beatrice, Neb.

This subject is of such vital importance to the coming generation that we aurists are giving it more and more the attention it deserves. As the years pass we are practicing preventive medicine. The people expect it and we find it more advantageous to conserve than to try to restore that which has been lost. The better educated the public becomes to the fact that early treatment of these acute otitis media cases conserves the greatest amount of hearing, as well as often preventing the necessity of an operation, the fewer mastoid operations we will be called upon to perform. Medical science to keep step with the other sciences must build for the future. We can best serve if we conserve. A few years ago we operated to save life in mastoid cases, now we operate to conserve hearing. Do not think that I believe every case of mastoiditis can be prevented.

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*Read before the Nebraska Academy of Ophthalmology and Oto-Laryngology, Omaha, April 24, 1922.

This is impossible. There are many cases of acute otitis media that can be cleared up without mastoid symptoms and without loss of hearing. I want to say here, that if we have any mastoid symptoms, operation should not be delayed. Cases showing no mastoid symptoms but continued daily decrease in the hearing, should be operated on. The operation performed at this early stage is slightly, if any, more hazardous than a tonsillectomy and should never be shirked for this reason.

Every case of acute otitis media should be examined carefully for any causative condition. Thorough examination will usually show some pathology or abnormality of the nose, pharynx, throat, or Eustachian tubes. A point I wish to call to your attention is, that anterior rhinoscopy will not show you the condition of the posterior one half of the nasal cavities. The best instrument I have found for examining the posterior one half of the nasal cavities is the nasopharyngoscope. Nasal pathology or obstructions such as large turbinates, a deviated nasal septum, sinus infection, etc., should be removed. Many times the large polypoid posterior ends of the lower turbinates are the cause of irritation at the mouth of the Eustachian tube. This irritation and increased lymphoid growth is a distinct menace to the middle ear. This operative work, or the correcting of these causative agents, is best done during the interval between attacks of otitis media or following the first attack; better, of course, before the first attack. This reminds me of a point I wish to call to your attention. Operative work done on the nose of a child must always take into consideration the future development of the part. I usually confine my operative work on the nose, where there is to be a removal of tissue, to children over fourteen years of age. The examination of the nose and throat while it plays an important part in the proper management of these cases, must not be substituted for an ear examination. One ear examination is of little value alone, but daily examinations, including a hearing test, are necessary, if one is to form an accurate estimate of the pathology of the middle ear. The results of these daily examinations, to be of most value, must be recorded and form part of the permanent record of the case. With a complete daily record of the case before you, every change is apparent and the management of the case is simplified.

The following statistics are from our records of the past year and are not from records taken during or shortly after the influenza epidemic. I have selected one hundred otitis media cases from our records that gave no history of previous infections. Allowing for errors in the patient's statements, they are correct. I bring them to you for your consideration. I am not trying to prove one theory or disprove another, but wish to call your attention to a few pertinent facts.

Number of cases	100
Number of cases showing no loss of hearing	8
Number of cases showing from 1-10% loss	29
Number of cases showing from 10-30% loss	32
Number of cases showing from 30-50% loss	20
Number of cases showing 50% or more loss	11

I have analyzed the cases as follows: The first eight cases were aborted without loss of hearing. In none of these cases was the membrana tympani incised, neither did it perforate. All of these cases came to me during the first few hours; some, before the ear symptoms developed. In the twenty nine cases showing from one to ten per cent loss of hearing, the membrana tympani was incised in fourteen cases. In fifteen cases the membrana tympani perforated. Fourteen of these had perforated before being brought to me; the other about twenty four hours after examination. In thirty two cases showing from ten to thirty percent loss of hearing, seven cases had the membrana tympani incised. In twenty five cases the membrana tympani had perforated. In every case showing a thirty to fifty per cent loss of hearing or more, the membrana tympani had been allowed to perforate before the case was brought to me. The above statistics support my practice of early incision of the membrana tympani in these acute cases of otitis media. In this series of cases there were ten that showed some infection of one or more of the nasal sinuses. In four of these cases the otitis media cleared up and the membrana tympani healed as soon as the sinuses were free from infection. The other six were markedly improved immediately following the sinus operation and the otitis media cleared up before the sinus. In this series of one hundred cases, twenty three gave histories of having had previous tonsillectomies. Only four had had tonsillectomies, the other nineteen having throats in which the amount of tonsil tissue ranged from a small piece of tonsil tissue on one side to complete tonsils on both sides. Carelessness at the time of the operation is responsible for this.

Being vitally interested in remedial work among children, I examined a series of school children to determine the number showing some loss of hearing. The examination disclosed that only fifty per cent of the children had normal hearing. In the series of cases just given, ninety two per cent showed some loss of hearing, the eight per cent that showed no loss of hearing were under observation from the first. The obvious conclusion is that a large percentage of this loss is preventable. Our relations with these patients, especially the children, is an important factor in reducing the deafness of the next generation. The deafened child is usually sensitive or sullen. Here we have a chance to use all the psychology we have at our command. We must treat these children mentally as well as medically and surgically if we are to get the best results.

The aurist does not lack training or ability but lacks the vision to see past the stated experience of some one man, that experience too often based on incomplete facts or complete facts in only a few cases. We are all too prone to continue in the rut some of us call experience. Experience to me means the trying out of, or seeing others try out, every form of treatment possible. One should be careful to get out of an experience only the good there is in it. Conclusions based on a few cases or only one line of treatment has retarded the profession and especially the aurist more than any one thing. Let me say here, that what proves most efficient in one man's hands is not always as effective in anothers. Conservation of hearing is, I believe of greater importance than partial restoration. Our duty is to prevent this loss whenever possible, by early correction of the causative pathology, constant attention to the details of each case, recording these details so that we may observe them carefully and so profit from our own labors. Our watchword should be service and we can best give this service by accurately recording our experiences and observing closely that of others. This series of cases strengthens my belief that the greatest single factor in clearing up these acute otitis media cases without operation, has been early myringotomy. The loss of hearing is in proportion to the length of time the discharge persists. There are exceptions to this rule, but it holds true for the average of our cases.

When to operate on an otitis media case is always a question that must be decided for each individual case. When we realize the fact that early resolution conserves the most hearing, whether brought about by treatment or operation and practice this, otologists will have taken a forward stride in their service to humanity.

TREATMENT OF FRONTAL SINUS DISEASE AND COMPLICATIONS.*

A. G. Lueschen M. D., Columbus, Neb.

In the treatment of frontal sinus disease it is of great importance to observe the condition of the intranasal anatomy, such as the middle turbinate bone, the uncinate process, infundibular cells within the semilunar hiatus forming a blind ending in this structure; the bulla frontalis and the septum if deviated, especially high up in the nostril. It is also very important, if possible, to ascertain the size and shape of the diseased sinus. The variability in the size and shape of the sinus is an important factor in the operative outcome. The large cavities usually have thin walls, and dehiscence is frequent. Recesses and crevices may escape complete disinfection and pus may collect in them and sequestra form. This is nicely shown by the use of roentgenographs and in many cases of this disease the method of attack must be governed by the size and shape of the sinus, providing we fail in getting results from intranasal operations.

The etiology of this disease is also important, whether it is due to the exanthem type, such as la grippe, measles, etc., or whether it is due to foreign bodies in the nose including maggots, centipedes, or other insects; occlusion of the naso-frontal duct either from tumors, polypi, septal deflections or enlarged turbinates. These are among the causative factors of a more or less mechanical nature. Intranasal pathology and infections of other accessory cavities, especially purulent ethmoiditis are very prolific sources of frontal sinus infection, especially in its chronic form. Bacteriological examinations should be made to determine the nature of the infection and should pure cultures be obtained, the vaccine treatment is at once indicated. In the chronic form I always feel safer if I first have an autogenous vaccine made and use it before beginning operative procedures. Many times the disease is modified considerably by its use.

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We will first consider acute frontal sinusitis from which the majority of cases get well with ordinary treatment. These favorable results ensue generally in cases where drainage of the naso-frontal duct is not obstructed, or the obstruction can best be relieved temporarily by sprays and applications of adrenalin chloride and cocain. Aspirin in ten grain doses three times a day is very favorable. Calomel followed by a saline laxative should be given every other day. If a cannula can easily be inserted into the frontal sinus, saline irrigations are of some value, but should not be used if they cause much pain or the insertion of the cannula is difficult. Any of the suction devices are of considerable value and I have seen some surprisingly good results after their use.

If the above treatment fails to relieve the patient in a reasonable time one should open the anterior ethmoid cells sufficiently to be able to pass a good sized cannula into the frontal sinus. The anterior end of the middle turbinate must be removed in most cases. This will cure the great majority of acute cases without further operation, provided drainage has been obtained early enough. Early drainage gives the best and quickest results, the same as we get better results by early incision of the ear drum in middle ear suppuration. In case the above procedures have failed, then it will be necessary to perform one of the regular intranasal operations. These may be performed according to the method of Mosher, Ingals, Halle or Good. Personally, I favor Good's method. I proceed to remove the anterior end of the middle turbinate and bite out the anterior ethmoidal cells with a biting forceps, being careful not to injure the cribriform plate. It is important to make a large opening into the frontal sinus. The cells which creep over the orbit must be rasped away in order to make this opening large. The frontal crest must be rasped away which enlarges the opening sufficiently to give it the desired drainage as a rule. A narrow strip of iodoform gauze is then inserted into the sinus to facilitate drainage of blood during the first twenty four hours and after that it should be irrigated daily with weak boric acid solution. Granulation tissue, if it should appear can be destroyed by applications of twenty per cent silver nitrate solution. This is all the surgery that has to be done in most frontal sinus cases, but it does not by any means cause a cure in all cases. There are some that have to have the external, classical, radical frontal sinus operation performed before a permanent and lasting cure is effected.

It is this chronic form of frontal sinus disease that has resisted all intranasal treatment and which gives us a clue as to its stubborness of treatment by the histories that we obtain regarding its degree of severity, that we as specialists have to deal with most frequently. In fact, fatal complications occur so often that the surgeon's zeal to operate has to be moderated. However, the radical operation is the only solution in many cases. Opening up the sinus may precipitate the evolution of postoperative complications, some latent focus being roused thereby to activity which will be mentioned later. Skillern divides the indications for radical operation into relative and absolute:

First — Relative indications.
(A) When the X ray shows a large sinus with many ramifications.
(B) When despite frequent irrigations the pus continues foetid.
(C) When headache continues with no apparent change in the secretions.
Second — Absolute indications.
(A) When the subjective symptoms are severe enough to interfere with the business pursuits of the patient.
(B) When any severe exacerbations occur.
(C) In abscess and fistula formations.
(D) In threatening cerebral and orbital complications.
(E) Actual appearance of complications.

In performing the external operation, I believe the most logical type of external operation on the frontal sinus is that which was recommended by Killian some twenty years ago. Since it was first advocated, various modifications have been suggested with a view to minimizing the deformity. The object of the Killian operation is the ablation of the entire infected mucosa and obliteration of the cavities, thereby preventing further infections and recurrences. The failures resulting from the performance of this operation have been invariably due to the fact that the operator has left some portion of the mucous membrane in some partly exposed part of the sinus. There are two types of imperfect operation. One in which the overhang has been left in the upper portion of the anterior wall, the operator being satisfied that he was able to remove thoroughly all the membrane underneath the overhang. This is a dangerous procedure because occasionally a little portion of the frontal sinus will extend upward through a small inlet and then spread out into a fairly good sized cell. This offshoot of the sinus is almost certain to be overlooked if any overhang is left. The other and more frequent source of failure has been the appearance of a cell situated beneath the horizontal portion of the frontal bone, at the external portion near the external angular process of the frontal. This cell may be entirely unsuspected unless it is most carefully looked for after widely opening and cleansing out the frontal sinus. A probe bent at right angles and passed externally from the naso-frontal canal parallel to the supra-orbital arch one half inch below the arch, will usually find this cell. The anterior wall of this cell is usually flush with the posterior wall of the frontal sinus. It extends laterally beyond the outer margin of the vertical portion of the frontal sinus. It is often overlooked when exenterating the ethmoid labyrinth because it extends so far externally over the roof of the orbit. It often has a septum which runs anteroposteriorly over the roof of the orbit, and has but a small communication with that portion of the ethmoid labyrinth, that is on the inner side of a line drawn to the middle of the orbit.

Dense cicatricial tissue prevents the secretions from following the line of least resistance into the nose and the swelling of the scar or upper lid; the evacuation of pus externally is the eventual common history. I favor the Killian operation because it opens the sinus sufficiently to enable the operator to remove all the mucous membrane and cells from the sinus as above described. If, however, I am in doubt as to the size of the naso-frontal opening being sufficient to take care of the drainage, I combine the Killian and Lothrop operations. In combining these operations we effect a large permanent drainage opening by removing the bone surrounding the ostium. We make a similar opening in the opposite sinus and unite the two. The bone removed includes the nasal crest, the spine of the frontal bone, the thick part of the nasal bones and the nasal process of the superior maxilla. The inter-frontal septum is perforated and cut away giving access to the opposite sinus. The perpendicular plate of the ethmoid is then cut away, and also the bone of the floor of the opposite sinus, so that only a thin shell of bone remains surrounding the wide opening in both frontal sinuses. The ethmoid cells in the neighborhood of the lachrimal bone and the agger nasi are opened up leaving an opening in the floor of both frontal sinuses ample for drainage. The skin incision is closed. Cleansing is the only after treatment required. During the last two years I did this combined operation on two cases with complete recovery. Both had had Killian operations done previously followed by fistula formation and purulent discharge. Dr. J. Eastman Sheehan in the New York Academy of Medicine, Section on Rhinology and Laryngology of Dec. 21, 1921, reports some cases of the application of the Thiersch graft to the walls of the frontal sinus. In the frontal sinus case Lothrop's technique was carried out by lining the bony walls with skin. One avoids weeks of irrigation and the external dripping; also the formation of scar tissue is avoided, thereby assuring a cure. The method has passed beyond the experimental stage, for Smith, Gillies and Sheehan have treated a number of cases successfully in this way. The graft is taken from the inner aspect of the right thigh and spread over the entire sinus cavities in one, two or three pieces. It is made adherent to the walls by the use of the Ballance catheter. The external wounds are left open to note how well the grafts have taken. The graft is held firmly to the sinus wall by small pledgets of cotton attached to strands of twisted silk. The cotton pledgets are removed after six days and the cavity as a rule is not irrigated for several days afterwards.

Dr. Sheehan said that he wished to impress the importance of this method in radical operations, in order to insure a cure. He had done many operations on the frontal sinus and had so often been confronted with dripping, and in some cases reinfection. If the membrane can be replaced in these sinus cavities with true skin, the cure is practically secured. This method is simple and if applied with proper technique, it will clear up most of the cases promptly after a radical operation. Last year a patient was treated who had been suffering for over five years; he had had three external operations and always suffered from dripping and catching cold. He was told that this new method was more or less experimental but he agreed to try the skin graft. Since then he has been entirely well. The reason I mention the Thiersch graft is because all of us doing this work have had the same experience that Dr. Sheehan has had; reinfection, fistula formation, dripping, catching cold easily, stoppage of the nostrils and daily irrigations which in many cases takes months before the cavity heals. I believe it will be well for us to try the Thiersch graft in some of our cases during the next year.

There are certain complications of which we must beware in intranasal work: (1) Fracture or perforation of the lamina papyracia, usually of little importance unless infection is carried into the orbit and a phlegmonous inflammation is excited. (2) Perforation of the lamina cribrosa which can occur through the olfactory fissure and consequences are fatal. (3) Periostitis and astitis are frequent complications of sinus disease. It occurs just about as frequently in the acute as in the chronic form. Often these inflammations are followed by caries and necrosis. (4) Osteomyelitis, infection of the diploe of the bone is caused by retention of an especially virulent secretion and traumatism (operative or otherwise) and occurs in two forms: the circumscribed and diffuse. The circumscribed form begins with oedema, pain, especially over the sinus wall and general systemic manifestations, fever, prostration, etc. The pathological process gradually spreads by continuity until it reaches the boundary of the ethmoid capsule where it ceases. Thorough resection of the diseased bone will usually result in a cure.

The diffuse form of osteomyelitis knows no boundaries, but continues unabated until the entire osseous covering of the brain is affected, unless cerebral infection and death halt the progress of the disease. Operations even though extensive offer no bar to the progress of the infection. (5) Orbital complications may arise and usually set in with violent manifestations due to the diffuse inflammation of one or more walls, and if infection is transported to the tissues surrounding the eye, all varieties of orbital and ocular conditions may arise. These include inflammation of the orbital cellular tissue, orbital abscess, and fistula, hyperaemia of the superior lid, infiltration of muscles, immobilization of bulb, exophthalmos and even panophthalmitis. (6) Intracranial complications with acute frontal sinusitis as a result of infection being carried to the meningeal structures through the venae perforantes and causing subdural abscess, extradural abscess, leptomeningitis, thrombophlebitis and brain abscess. That the frontal sinus more often is the seat of complications than its fellow cavities is due to the following anatomical facts: (1) It communicates with both brain and orbit in a much larger area. (2) Intimate connection exists between the veins and lymphatics of the sinus mucosa and those of the dura mater and meninges. (3) The walls are frequently thin and even many times show dehiscence. (4) It often contains numerous projections and fossae which allow the infecting microorganisms to remain undisturbed, thus favoring their virulence and toxicity. (5) The cerebral wall contains numerous small foramina for transmission of veinlets through which microorganisms can find entrance into the cranial cavity.

Regarding meningitis, I wish to remark that there is an acute type, not only involving the brain, but extending to the spinal cord, which is nearly always fatal. These cases are such as are most frequently seen by men devoting themselves to internal medicine. The source of infection is rarely, if ever, discovered. I have recently seen such a case and was called in to decide whether the infection reached the meninges through the nares. I found the patient in a mild delirium. The great difficulty of making a thorough examination of the nares and accessory sinus in such a very sick patient makes the examination unsatisfactory and death frequently occurs within two or three days. There is another type of meningitis, commonly described as serous meningitis, in which the symptoms are less acute. In such cases, if disease of the accessory sinus has been discovered and no other sources of infection can be found, I believe that we are justified in advising operative interference with the object of removing further infection. A third class of meningitis, a more chronic or leptomeningitis includes cases in which undoubted sinus disease has existed for some time. When all other sources of infection have been excluded, I would again advise operation on the same ground as in the case of the serous meningitis.

Case 1. M. S. Male. 42 years of age, came to me October, 1916, complaining of occasional pain and swelling over the right eye lid and brow. He stated that 3 years ago he first noticed this swelling and that he had a very severe cold in his head at that time with complete stoppage of nostrils and the swelling over his brow more severe at that time than at any time since. He noticed that he is troubled more frequently in winter than in summer. Transillumination tests were unsatisfactory but when patient practiced inflation the swelling became larger showing the presence of a fistula. In this case we made an incision through the skin, found a fistula and then proceeded with the removal of the middle turbinate bone and irrigation of the frontal sinus. Irrigation of this sinus would force the salt solution through this fistula. Patient recovered completely after 2 weeks daily irrigation and the external incision was completely healed on the 10th day with a very small scar. I report this case to show how easily they are sometimes cured.

Case 2. A. K. Female, age 26. I was called to her home January 10, 1919, and diagnosed her case as erysipelas which commenced on the right side of her nose and ran the usual course, running around the neck and terminating on the top of her head. Frontal sinus infection was a complication and possibly the anterior ethmoidal cells were infected. The patient had had her tonsils and adenoids removed about two years previously and was advised then to have her nostrils, which were very much obstructed with enlarged middle and inferior turbinates on both sides operated upon, but this was refused. On February 3, 1919 she was again advised to have the middle turbinate removed so we could irrigate her frontal sinus on the right side which was discharging more or less pus, but she again refused. I did not see her again until March 20, 1919, when she came to my office. At this time she was very hoarse and said she had been that way for the last three weeks. Upon examination I found small lymphoid growths the size of peas covering the entire postpharyngeal wall and extending into the larynx causing hoarseness. I began treating her by applying silver nitrate solution which at first gave relief but later her condition grew worse. I tried argyrol and several other antiseptic solutions without beneficial results. Finally April 12th, I tried four syringes of combined bacterial vaccines which cleared this condition up with surprising rapidity. The larynx and pharynx became normal and her speech perfect. This case was a strange one to me and I was very much surprised to see how completely the vaccines cleared up the trouble. After investigating the literature on this subject. I find that Dr. Casselberry of Chicago, reported two very interesting cases of infective lymphoid growths of the laryngopharynx which were secondary to sinus suppuration.

Dr. Casselberry found that the streptococcus haemolyticus was the predominating microorganism in both cases.

INJURIES TO THE EYEBALL WITH THE REPORT OF A FEW CASES.*

J. B. McPherson, M. D., Hastings, Neb.

The subject of injuries to the eyeball and the treatment thereof is of especial interest at this time owing to the frequent eye injuries which occurred during the late war from rifle bullets, explosive shells of various kinds, poisonous gases, flame, boiling water, and various other foreign bodies, which may have been thrown or blown into the eye.

It will, perhaps, be well to note here that first attention only was given on or near the front line trenches, and that the eye injury cases were immediately sent to the rear, so as to be under the care of an ophthalmic surgeon. Do not lose sight of the importance of the first aid, as many cases of sepsis, tetanus, sympathetic ophthalmia, with the loss of one, or perhaps both eyes, have been avoided by the application of some simple eye wash, such as boric acid or normal saline solution; also, by the prophylactic dose of antitetanic serum, when there was cause to fear the presence of tetanus germs.

It is my intention to go into this subject only in as brief a way as possible, trusting thereby that some little point of interest may be brought to your attention, which may in the future be of some service.

It will be necessary, however, to classify these eye injury cases into non-penetrating and penetrating wounds of the eyeball.

Under the non-penetrating injuries will be classed the following: Contusions, burns, and explosive injuries. No doubt all of you have had some experience with eye injuries caused by contusion or concussion, either by a blow from a fist, finger or some kind of blunt instrument, and allow me to say that it is my experience that one cannot always judge from the force of the blow how serious a condition may develop from an apparently slight injury.

I well remember hearing one of the most prominent ophthalmic surgeons in this country say that he had had to remove a good many eyes from just a finger having been thrust against the eyeball without the apparent cutting or wounding of the exterior layers of the front of the eyeball. This can readily be understood if we will remember that the eyeball is a semi-fluid mass encapsulated, as it were, by membranes possessing only limited elasticity, and if struck from without by some blunt instrument, the sudden compression may cause such injuries as dislocation of the lens either through rupture of the posterior capsule into the vitreous chamber, or the anterior capsule into the posterior or anterior chambers, and in rare cases, (I, myself, have never seen one) the lens is forced through the sclera and may be found just under the conjunctiva. Another quite frequent injury of this nature is hemorrhage, or when a serous exudate may occur beneath the retina, thereby resulting in a detachment of the retina, with, in almost all cases, the ultimate loss of vision in that eye.

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*Read at Meeting of Republican Valley and Tenth Councilor District Medical Society at Cambridge, Neb., May 25th, 1922.

When an eye is struck, the patient usually complains of severe pain, still, in some cases they will tell you there has been practically no pain. Some persons will be so stunned by the blow that they will fall.

Upon examination, an abrasion of the cornea is usually found with congested conjunctiva, and, if the blow has been severe enough, congestion of the iris with a contracted pupil and perhaps some interference with vision. Usually the photophobia is so marked, if seen shortly after the accident, that the patient cannot open the eye without the aid of his hands or the attending physician's help.

Lachrymation and photophobia in many cases make it almost impossible to make a thorough ophthalmoscopic examination. Many of these cases will show a congested retina.

In more serious injuries, hemorrhages of the retina and choroid may occur. Such conditions might follow an injury from a bullet, or other foreign body which has entered the orbit, but has not ruptured the globe.

Only a few months ago I removed a sliver of wood from the orbit of a boy (age thirteen years) one and one-half inches long, about one-fourth inch wide at one end, tapering to a fairly sharp point at the other, which had entered by piercing the conjunctiva to the inner side of the cornea, traveling inward and backward, and was completely imbedded. This might have been easily overlooked, since the symptoms were very slight, considering the force with which the stick must have struck the eye. Vision was 20/30 plus in the injured eye, with subconjunctival hemorrhage, conjunctivitis, and a slight amount of swelling. Patient complained of no pain. When I got hold of the stick with a pair of small iris forceps and they slipped off a couple of times, I quickly made up my mind that a larger and stronger pair was necessary, procuring the same, the sliver was withdrawn without any trouble and the case went on to rapid recovery.

I believe most of the gentlemen present have had some kind of experience with burns of the eyeball, varying in degree from various causes; such as burns from gases, fire, lye water, lime, fresh plaster, hot water, tea, coffee, also hot metals and many other sources. Many of these cases when first seen will present such an appearance that the physician will be tempted to make a most unfavorable prognosis, and while many such cases do lose part or the entire vision in the burned eye, many more, I believe, recover with useful or even normal vision. One case, somewhat out of the ordinary that comes to my mind, is that of a man who was pulling up a pot of melted lead with block and pulley to the workman at the top of a telegraph pole. In ascending, the pot struck the pole and part of the contents was spilled out and in falling, struck squarely in the man's eye, forming an almost complete cast of the front of the eyeball. This man's physician is an acquaintance of mine and has this same piece of lead in his office. The conjunctiva, both ocular and bulbar, looked cooked, but the case recovered with almost perfect vision.

Subconjunctival hemorrhage is generally limited to the area where the eye was struck, but may cover the entire sclerotic coat. If the subconjunctival hemorrhage occurs immediately after an injury, it is not as a rule considered a serious condition, but should it occur some few days later, one would immediately have to consider a fracture through the anterior fossa of the skull. Too great stress cannot be laid on this symptom as it nearly always indicates a very grave condition.

In intraocular hemorrhage, the seriousness of the condition depends somewhat on the amount of hemorrhage and the location thereof; whether into the anterior, posterior, or vitreous chambers; whether from a ruptured blood vessel or rupture of some of the internal structures of the eyeball. If the hemorrhage is into the anterior or posterior chambers, it is as a rule, not nearly so serious a condition as it would be should the hemorrhage be in the vitreous chamber. I think this can readily be accounted for because of the absorptive qualities of the aqueous humor. As a rule, hemorrhage into the anterior and posterior chambers will be absorbed without leaving a trace of the hemorrhage, while at many times, if in the vitreous chamber, stringy, thready, and small dark floating specks are left, probably from fibrin of the blood.

Hemorrhage from retinal vessels sometimes occurs from a blow, with or without detachment of the retina. I well remember one such case in a young man, whose vision was lost in one eye when a boy from a blow while hitching up a team, one of which was a young horse just being broken to drive. The horse, jerking its head, struck the young man a hard blow across the side of the head, knocking him down. In a few minutes after getting up he found his vision was not good. It kept getting worse and he was taken to town, about ten miles, and there a correct diagnosis of detached retina with hemorrhage was made and proper treatment was started. In a week as no improvement took place, the patient came under my care. The hemorrhage gradually cleared up to such a degree that one could, with an ophthalmoscope, see the detachment, and the patient got so at times, that after lying on his back for some time and when (while still lying flat) he would look up, he could see a little. The last I heard from this patient was that the vision was practically nothing.

Penetrating wounds of the eyeball may be divided into lacerated, incised and punctured. The first, or lacerated wound, is as a rule, much the most serious injury, owing to the force that has been necessarily expended in rupturing through the cornea or sclera. Many such wounds have occurred during the late war from bullets, pieces of metal, rock, glass, wood, and various other substances. Should the lacerated wound be so extensive as to involve the interior of the eyeball to a marked degree, one should, if the case is seen shortly after the injury, be the better able to judge whether or not evisceration or enucleation should immediately be undertaken.

It is almost a daily routine for most of us in the practice of medicine to be called upon to remove some small foreign body from the eye, and in a large number of these cases the foreign body is found to be imbedded in the anterior layers of the cornea; as a rule easily removed, but sometimes the foreign body penetrates into the deeper layers of the cornea and removal requires some little patience, and a fairly good anatomical knowledge of the structure of the cornea is at times a great asset.

We had quite a number of such cases in the Base Hospital at Houston, Texas, one of which was caused by an exploding rifle, by which three pieces of brass were blown into the right eye of a young man. Two of the pieces imbedded themselves into the deeper layers, and one almost penetrated into the anterior chamber. Had these little pieces been of steel, their removal could have perhaps been accomplished with the aid of a magnet in a few minutes and with much less danger of pushing the foreign body into the anterior chamber, thereby converting the injury into a perforating wound, complicated by a foreign body in the anterior chamber. Two of these foreign bodies were removed in a few minutes, but one of them required a little time and care, but was successfully removed without causing a penetrating wound.

Another case was caused by a stick flying up and striking eye glasses, breaking one lens, and some pieces of the glass cutting into the deeper layers of the cornea. Two small pieces of glass remained in the wound and were successfully removed and the case went on to recovery. Aseptic surgery is as important here as in abdominal surgery, and should be as carefully carried out as possible.

One case that I believe will bear mentioning, is that of a boy, aged twelve years, who, while carrying hay into the barn with a pitch fork, was struck in the eye with the tine of a pitch fork in the hands of another boy. The tine of the fork, pierced the eyeball just below the lower edge of the cornea and entered the vitreous chamber, far enough to touch, I believe, the posterior wall. He was sent in from a distance of one hundred and fifty miles. Upon examination I found the anterior and posterior chambers filled with a dark bloody fluid so that the interior of the eyeball could not be seen. At the point of entrance of the fork tine, a large bead of vitrous humor protruded. The eye was carefully washed with boric acid solution and a 1 to 6000 cyanide of mercury solution, and after one drop, a 1% solution of atropine had been instilled into the conjunctival sac, small ice pads were applied with patient in bed in hospital. Sodium salicylate was given internally by mouth. This case rapidly recovered with almost normal vision. (I will state that I gave the boy's parents a very unfavorable prognosis when I first examined the case).

Another case is that of a young man who was to enter the officer's training camp at Fort Snelling, in a few days. While repairing a fence the end of a wire struck the right eye, puncturing the front of the eyeball but not injuring the lens. The wire was either pulled right out or came out, he didn't know which, and part of the iris followed or was slightly attached to the wire and was pulled out of the wound, with quite a little hemorrhage into the anterior and posterior chambers. The protruding part of the iris was carefully cut away and antiseptic dressing applied and the patient had a very good recovery with useful vision.

Another case is that of a young man about twenty-six years old, who was splitting wood with giant caps, one failed to go off, so this young man struck it with an ax. It exploded and a number of small pieces struck him about the face, one of which entered the left eye just to the outer side of the center of the cornea, passed through the cornea and anterior chamber, cut a smooth slit through the iris, passing backward through the posterior chamber, vitreous chamber, and posterior layers of the eyeball were imbedded against the bony wall of the orbit (this was found to be the case by careful X ray examination). This young man was put to bed and antitetanic serum administered subcutaneously. Internally, sodium salicylate was given by mouth and cold applications applied locally. No serious inflammatory symptoms developed and the eye rapidly cleared with the exception of a very marked traumatic cataract.

Another case is one in which a young man, a mechanic, was hammering on a chisel repairing an automobile. A small piece flew off the chisel and penetrated the eye-ball, lodging in the posterior part of the vitreous chamber, location found by X ray. The piece of metal was removed by a giant magnet and proper treatment instituted, but in spite of treatment the eyeball contents had to be eviscerated four days later. The presence of some foreign body in the eyeball or orbital cavity is a complication that will quite frequently have to be taken into consideration.

Another case of this kind is that of a young man who picked up two flare signal pistols and discharged both in his face. The charge of the one, entering through the left eyeball into the orbital cavity completely destroyed the eye and so destroyed the adjacent soft tissues of the orbit, together with a compound comminuted fracture of the ethmoid and floor of orbit, that this tissue and quite a good deal of the bone had to be removed. This is a very remarkable case in my judgment, owing to the fact that the patient has so far retained some useful vision in the other eye, although the soft tissues of the right orbit were also more or less traumatized by the ethmoid bone and perhaps by the heat which must have been present in this signal charge.

This is but one of the severe lacerated wounds of the eyes that has occurred during the recent war, and no doubt, a very interesting book will be written and available in the near future on this subject.

Incised and punctured wounds are of quite frequent occurrence and may be inflicted by most any kind of a sharp or pointed instrument or material, such as a knife, scissors, stick, glass, chip of metal, etc. In many of this class of eye injuries, the eyelids are more or less involved, and, by the time the surgeon sees the case, may be badly swollen and perhaps more or less lacerated. Great care should be used not to overlook any injury to the eye beneath these swollen and lacerated lids, as many an eye may be saved with useful vision by the first careful examination and proper prophylactic treatment.

I have not the time to go into detail regarding this class of eye injuries, but always remember that some of the seemingly trivial injuries may in the course of a few hours or days, be transformed into a very serious condition. Tension of the eyeball should always be taken as it may be the means of telling whether there is an opening through the cornea or sclera. No doubt, every ophthalmological surgeon has had a number of such cases to treat and perhaps to worry over.

The most frequent complication in this class of eye injuries is, perhaps, prolapse of the iris and in the more serious cases, also prolapse of the ciliary body, and choroid injury to the lens and escape of vitreous fluid. Should the injury be so extensive that the ciliary region is involved together with the loss of a large amount of vitreous humour, the eyeball will almost certainly be lost.

In "Archives of Ophthalmology," Lowenstein reports that wounds of the eye form two per cent of the entire number of wounds in battles, on plains and wooded hills; while in the Alps, he has found them after twelve months' service to amount to eight per cent. The great majority of these wounds are caused by bits of stone, seventy two out of ninety eight being perforating wounds, thirty five being of both eyes. Next to these bits of stone, come splinters of metal and very often, it was hard to differentiate between a contusion and perforating wound, when the anterior chamber was filled with blood and the wound perforation was minute.

Bits of stone become encapsulated in all the tissues of the eye, for the most part without reaction. Five cases of bits of stone in the iris, which could not be extracted at once on account of the suppuration in the face, remained without reaction for eight weeks. Of twenty one wounds of the lens by bits of stone, seventeen showed an opacity of the posterior cortex immediately after the injury which ended in all seventeen in total opacification. In four the opacity, which was of no less extent, was localized in the anterior cortex. None of these showed any progression whatever.

Only seventeen blind eyes had to be removed out of the one hundred and thirty three perforating wounds. As he had not met with sympathetic ophthalmia in his cases, he employed conservative treatment as far as possible.

(Continued on page 440)

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THE EYE, EAR, NOSE AND THROAT SPECIALTIES.

The editor's idea of this Eye, Ear, Nose and Throat number of the Journal, and the list of contributors to it, point plainly to a condition of affairs which has not long existed in Nebraska. They point to the fact that all over the state, in the small, as well as the larger cities, some men are limiting their practice to eye, ear, nose and throat work, and are reporting the results of their observations in these lines. An issue such as this fulfills a service in presenting and disseminating the views of a certain number of these men, so that we may each of us know what some of our neighbors are doing. But there are other means to this end which are not being made the most of. The meetings of Eye, Ear, Nose and Throat men in the larger centers, are not well enough attended, especially by the men from out in the state.

The Omaha and Council Bluffs Ophthalmalogical and Otolaryngolical Society meets the third Wednesday in every month, except the three summer months, at the University Club in Omaha. The Sioux Valley Eye and Ear Academy meets in Omaha during July on a date to be announced in this Journal. The Nebraska Academy of Ophthalmology and Otolaryngoloy meets wherever the state medical meeting is held, on the night before the meeting opens. All men interested in eye, ear, nose and throat work are welcome at these meetings, and will find them well worth attending.

There is no easily accessible information as to clinics in our specialties. If a list of such clinics in Omaha and Lincoln, for instance, were published in the journal, visitors to these cities would be better able to improve their time, and their visits might be more frequent.

On a visit to Chicago, the writer saw an idea tried out which certainly made a state meeting more interesting to specialists. The general program only occupied a part of each day, and other hours were devoted to postgraduate lectures for eye, ear, nose and throat men. The idea was not to present original papers or case reports, but to have certain special subjects summarized by men qualified to speak on them. Some of these subjects were "Syphilis and the Eye", the "Neurology of the Eye", "Phlyctenular Conjunctivitis", "Bacteriology of the Eye", "Cataract Operations", the "Eye in relation to the Ear, Nose and Throat", "Functional tests of the Ear", etc., all subjects about which we are supposed to know, but on which most of us could stand a little brushing up, a digest of some of the newer work, and a chance to ask questions. Not over twenty-five men were present at most of these lectures, but they were certainly better amused than if they had been listening to symposia on gallbladder disease or descriptions of a new method for suspending the uterus. If the officers of the State Medical Association would approve of such an idea, and take it up with the specialists in the cities where meetings are held, there is no reason why our State Meeting could not be made just as interesting. Such a plan would supplement admirably the program of the Nebraska Eye and Ear Academy. It seems worth a trial.

—S. R. G.

THE NEED FOR POSTGRADUATE TRAINING IN OTOLARYNGOLOGY.

The treatment of diseases of the nose and throat, as a specialty, has been in progress of evolution during the past one hundred years.

At first certain men, while covering the entire field of medicine in their practice, became renowned for their special skill in the treatment of diseases of the nose and throat, and gradually as their success increased they limited their work to otolaryngology.

Later in the evolution of the specialty men after years of service in general medicine and surgery, and intensive study of the diseases of the nose and throat in this country and abroad, confined their work to this one field.

Gradually the profession has lost sight of the necessity for this preparation, and the idea of entering a field of practice which seems to promise affluence and ease has become uppermost in their minds, until innumerable men have located in the centers of population with but a meager knowledge of the fundamentals of medicine and proficient only in the technique of a few operations.

This was very graphically illustrated to the medical profession during the late war when it was found that before the larger portion of doctors enlisted as otolaryngologists could be assigned to duty, it was necessary to give them a course of intensive training in the fundamentals of the medical sciences and diagnosis.

This lack of proper preparation and training has resulted in the degeneration of otolaryngology, and the tendency for far too much indiscriminate and unnecessary operating, for which the public and the profession must suffer.

Ever since Billings and Rosenow first published the results of their investigations in reference to focal infection, the tonsils, sinuses and teeth have had to bear a heavy burden. To the discriminating profession it has long been apparent, that we are often too hasty to blame every ill on diseased tonsils and the results of their removal are therefore frequently disappointing to patient and surgeon alike.

It is as an unsettled question whether the patient has been done any great harm by the removal of undiseased tonsils or the drainage of a healthy sinus, provided no extra trauma has been inflicted, but why submit them to a needless operation?

The improvement of this state of affairs must take place through the rank and file of the profession. It must be emphasized, that simply limiting the practice of medicine to one particular field, is not the essential thing in specialization.

The medical curriculums of our colleges prepare the student for the practice of general medicine and surgery. In order to specialize intelligently it is necessary to pursue an exhaustive study in the chosen field.

Fortunately the right step has been taken and there are now several medical centers in this country where they are attempting to correct this evil and provide the necessary training in the fundamentals as a ground work to the clinical study and practice of otolaryngology.

—Clarence Rubendall

COMPUTATION OF COMPENSATION FOR EYE INJURIES.

The section of Ophthalmology of the American Medical Association at their recent meeting in St. Louis, adopted the majority report of their committee on estimating compensation for eye injuries. This was done not with the thought that it was all embracing in its scope or even theoretically perfect but it was pretty generally felt that it was a start in the right direction and was a base from which we might form our computations. Various plans for determining the degree of industrial loss of vision and damage to the eye have been proposed from time to time and adopted by local organizations. But in the main, the estimation of the amount of ocular damage with the compensation due the claimant has been determined by the personal opinion of the oculist making the report, with the result that the reports of two equally good men might vary widely as to the amount of damage present. This naturally has put the profession in a rather embarrassing position with the patient, the labor commission, insurance companies, etc., and it is very evident that a generally accepted standard can do much to correct this situation.

In the plan proposed by the committee, three functions of the eye are considered and valued; namely, vision fifty per cent, field of vision twenty five per cent, and binocular vision twenty five per cent. An eye is considered to be industrially blind when the vision is 20/220 or less, in which case the visual field and binocular single vision would also be lost. Other defects such as lid injuries, defacing conjunctival or corneal scars, or the loss of the eye-ball, etc., are to be compensated for in addition to the above.

This method insures a more accurate decision both for the client and the compensating companies than the former plan where vision was valued at one hundred per cent and was alone considered. For example, a patient might be left with the most distressing diplopia as the result of an injury or with a marked decrease in the limits of his visual field and still have normal central vision in which case his compensation would be nil, although both conditions constitute a real handicap in the persuit of his regular vocation. On the other hand, a claimant's central vision might be reduced to 20/200, but with an intact field of vision and binocular fusion, the eye would still be of real value to him, much more than the decrease of vision would indicate.

The report is published in full in the Transactions of the Section of Ophthalmology of the American Medical Association, 1922, page 337, with tables for computation, illustrative cases, etc., and is well worth a careful study of any one who finds it necessary from time to time to give an opinion on this class of cases.

In this connection, a word of sincere appreciation is due to our Nebraska Department of Labor and Compensation, as conducted by its secretary, Frank A. Kennedy, and his associates. They have not only cooperated most heartily with the above plan for consideration of ocular injuries, but have been untiring in their efforts to secure just and satisfactory adjustment of the claim coming under their notice.

It is not to be expected that the plan as given by the committee will completely cover all cases, nor will it meet with the unqualified endorsement of all oculists, but it is to be hoped that its practical application will suggest improvement, and that a closer cooperation of oculists, compensation commissioners, and insurance officials with this report as a basis, will result in more exact justice for all parties concerned.

—J. M. Patton.

IMPORTANCE OF EYE CARE—MOST EYES DEFECTIVE.

Statistics covering many years show that nine out of every ten persons over 21 usually have imperfect sight. At 31 the proportion is larger. Above 40, it is almost impossible to find a man or woman with perfect sight. For the last 100 years the profession has wrestled in vain with the problem, finding no means compatible with the conditions of modern life for preventing errors of refraction, and no means of relieving them except by eye glasses.

It was learned some years ago by the examination of several thousand school children in one of our large cities, that 66% of them had defective vision of such a degree as to warrant the wearing of glasses.

Quite recently the examination of more than ten thousand employees in factories and commercial houses, showed that 53% had uncorrected faulty vision, 13% had defects which were corrected, making a total of 66% with defective eyes.

These two surveys were made under different auspices several years apart. The figures are startling. They mean that a very large majority of the public have eyes defective to such a degree as to require glasses to conserve vision and make the individual a happier and more efficient member of society.

Our eyes are large factors in our efficiency. Nature allots each organ of the human machine a certain portion of nerve energy. When eyes that are defective demand more than their share of this nerve energy, it must, of necessity, lessen the normal supply. The wasting of nerve energy directly diminishes human efficiency. Often the victim of defective eyes is unaware of trouble. It may be indicated by headaches, often attributed to stomach trouble, by nervousness, drowsiness and irritability.

(Courtesy, Eyesight Conservation Council of America.)

THE END OF VOLUME VII.

With the December number, Volume VII of the Nebraska State Medical Journal ends. The present editor has also completed two years of supervision of the Journal.

Whether your Journal is in your estimation, worth while, is for you to say. Certain it seems to the editor, that when in the beginning of his professional career, he had access to medical literature of the class published in this Journal from month to month, he devoured it with considerable avidity, and considered it good.

The thanks of the editor are due to the profession for their consideration, universal kindness and increasing cooperation.

THE MASSACHUSETTS VIEWPOINT CONCERNING CULTS.

The most sensible thing the writer has read concerning the medical profession and the cults occurs in the report of a committee to investigate the Medical Cults presented to the Massachusetts Medical Society, part of which follows:

"The proper way to handle the cult problem which will always continue to crop up, is to avoid intolerance against the practitioners of these methods, and to educate the public and especially the legislators, that these cults are in reality simply therapeutic agents. It should be made clear that all those using any therapeutic agent in the care of the sick should only do so, provided they possess an adequate general medical knowledge, based upon uniform examination, such as the Massachusetts law calls for at present. The Society should always be active in trying to raise the standards of this examination."

INJURIES TO THE EYEBALL WITH THE REPORT OF A FEW CASES.

(Continued from page 437)

For wounds of the eye incurred in mountain war, Hertel reports that he found bits of steel in sixty per cent of two hundred and forty two cases of intraocular foreign bodies; the remainder, consisting of copper, brass, powder, stone, straw, wood, and glass. The wounds presented almost uniformly, such a picture as is produced by blasting or explosions; multiple lesions in the face, both eyes struck in twenty one per cent, and not rarely, several splinters in one eye.

The force of impact usually was very great, as shown by the great hemorrhages within the eye, the penetrations of particles as minute as 2/10 mg. into the posterior segment of the eye, the frequent occurrence of wounds of entrance through the closed lids, often with tearing of pieces of bone from the wall of the orbit, and the frequency of double perforation.

Examination with X ray and sideroscope, were indispensable to diagnosis with bits of metal weighing less than 3 mg. The X ray may fail, but Hertel's sideroscope points them out if they weigh as little as 2/10 mg., provided they contain iron.

Magnet extractions of fragments of steel are considerably less successful in war than in peace; about two to one probably, due to the facts that on the average, the wounded eyes are operated upon later in war, that the force of impact was greater, and that double perforation was more frequent.

Bits of copper and brass are successfully removed in a certain number of cases, yet one half of the eyes are subsequently lost from infection, detachment, and from other particles which have not been removed.

Bits of stone were removed from the anterior chamber, but in only two cases were the eyes saved after removal from deeper portions. No attempt was made to remove the foreign bodies in a good many cases, because they could not be located accurately.

Powder driven into the eyes was well borne in part of the cases. Bits of glass almost always caused infection.

THE POOR EYE-MAN.

Doctors, like all men born to grief,
Have dark and gloomy days;
Jones pays, but simply won't get well;
Smith thrives, but never pays.
The eye-man is unfortunate
In some peculiar ways.

For when the surgeon's judgment fails
Or when his scalpel flies
And cuts the deep carotid off
He hears no saddening cries.
His patient simply stays asleep
And usually dies.

The internist who writes too large
A dose of cyanide
May take himself to his repose
Perfectly satisfied
That he will not be called, because
His case has "up and died."

But if the eye-man's finger slips
And gouges out an eye,
He knows eye patients bloom with health;
Seldom or never die,
And this blind stump will tell its tale
To many a passer-by.

And when, as often is the case,
The patient feels his mind
Stirred by revengeful fancies, and
To homicide inclined,
He usually can see to shoot
With the one eye left behind.

And even if his only eye
Was spoiled, so the poor man
Can never see his way about
To carry out his plan,
The eye-man knows no rest, for he
May have a friend who can.

—S. R. G.

KERATOPLASTY

(Elschnig: Oph. Gesellschaift Heidelberg 1920:331)

Elschnig reports his results in keratoplasty for corneal opacities. Using the von Hippel method of trephining down to Descemet's and replacing the tissue by a similar trephined disc from the clear part of the cornea, he obtained a more or less transparent permanent graft in twenty-one cases out of fifty-four. Seven were perfectly clear and one patient had vision of 20/20. Eleven grafts sloughed, and fifteen became opaque.

Ebeling and Carrel: J. Exp. Med. 1921:45 P. 435.

These authors have had success in experimental keratoplasty from one cat to another ('hetero-graft) using a carefully bevelled rectangular graft held by stiches.

BEWARE, DR. GEORGE H. SIMMONS!

"**Editor, Nebraska State Medical Journal:**— Your Cancer Number is fine. While I should hate to see you other than as the editor of our state Journal, I will admit that you could improve on a lot of other Journals that come to me. M. N."

AT THE CLINICAL CONGRESS AT BOSTON

Eleven Nebraska surgeons were admitted to fellowship in the American College of Surgeons at the Boston meeting the last week in October: Drs. J. F. Langdon, W. L. Shearer, Ralph Luikart, C. S. James, W. P. Haney, Omaha; Earl B. Brooks, Lincoln; C. L. Egbert, Hastings; Henry Hapeman, Minden; C. E. Palmer, David City; C. E. Slagle, Alliance; Hugh E. Mantor, Sidney.

Other Nebraska Fellows attending were Drs. B. B. Davis, J. P. Lord, L. B. Bushman, H. C. Sunney, Omaha; C. A. Allenberger, C. H. Campbell, F. H. Morrow, Columbus; Donald Steenberg, Aurora.

A very interesting and profitable meeting is reported. One whole day was devoted to a conference on standardization of hospitals.

NEUROPSYCHIATRISTS FOR THE VETERANS BUREAU—SPECIAL TRAINING OFFERED

Washington, D. C., October 31, 1922.

The United States Veterans' Bureau offers a special course in Neuropsychiatry to a certain number of qualified physicians on condition that upon completion of such course they will continue in the service of the Bureau for a period of at least two years thereafter.

The policy of this Bureau is to provide expert medical attention for the disabled veterans so that everything possible may be done to restore them to health and proper status in civilian life. To maintain this policy in the opening of new hospitals, and being unable to secure the required number of specialists in nervous and mental disease, it becomes necessary to instruct a staff of our own for this line of work. To this end a systematic and comprehensive course in Neuropsychiatry has been carefully outlined consisting of 176 lectures and demonstrations and some 440 hours of clinical and laboratory work. Each course will be for a period of about four months. There will probably not be more than two courses annually. Courses will be offered as long as it appears necessary in order to meet Bureau requirements. Instruction will include the necessary reviews of the fundamentals, followed by clinics and lectures on the various forms of nervous and mental diseases, including endocrinology. Special attention will be devoted to diagnostic methods, the general care of patients, and methods of treatment. Students will have actual experience in practical work. General problems of hospital administration, medico-legal questions, rehabilitation methods, psycho-metric examinations and other related matters will be adequately dealt with.

The main part of this course will be given at St. Elizabeth's Hospital, a government institution for the insane at Washington, D. C., which offers unusual and unexcelled facilities for such work. There are nearly 4,000 patients and case histories of more than 20,000 discharged patients immediately available for study. Here are all classes of nervous and psychotic diseases, while other public hospitals in Washington will provide abundant clinics in so-called functional disease, borderline cases, and the milder types.

The teaching staff that has been selected to give this course in Neuropsychiatry is significant. Besides the members of the staff at St. Elizabeth's there will be lecturers from the Medical Departments of the Army, the Navy, the Public Health Service, the United States Veterans' Bureau and the U. S. Department of Agriculture. A number of America's most eminent neurologists and psychiatrists will come to deliver lectures on special topics.

As the number of students that can be accommodated is limited, early application for each course is desirable.

Physicians who desire to enter the service of the U. S. Veterans' Bureau and to take this course in Neuropsychiatry are requested to make application at once to the Director of the U. S. Veterans' Bureau, attention Medical Division, including thereon the information, and where necessary the documents, mentioned in the following list of qualifications:

1—Applicant must be a citizen of the United States.

2—Must be between 23 and 45 years of age.

3—Must be a graduate of a Class "A" Medical School with at least six months' service as interne in a general hospital or its equivalent.

4—Must present a certificate from the Dean of his Medical School as to his professional ability, his personal suitability, and his moral character.

5—Must be able to show by recent medical examination certificate that he is in good health and physically fit.

6—Must sign a statement that he will give at least two years' professional service to disabled veterans after completion of the course.

7—Must submit with his application a recent photograph of himself.

Ex-service men who have been honorably discharged will be given preference.

Other things being equal, members for the course will be selected in the order of their application.

Students who are authorized to take the course who are not already in the employ of the Veterans' Bureau will receive a salary of $166.00 per month, with no allowances, while taking the course.

On satisfactory completion of the course members will be recommended for the grade of Passed Assistant Surgeon in the Reserve Corps of the U. S. Public Health Service, or they will become eligible for employment as Class "B" physicians under the U. S. Civil Service Commission and assignment to duty with the U. S. Veterans' Bureau. These salaries range from $3,000 per year, upward.

The course will start on January 4, 1923.

T. H. Scott, Director.
Robert U. Patterson, Assistant Director.

THE SOCIETIES.

The **John A. Creighton Medical Alumni Association** held the annual session November 16-18. The attendance was large and the interest intense. The principal features were clinics at hospitals, surgical, gynecological and obstetric films, and an address by William C. MacCarthy, Rochester, Minn., on "The Relationship Existing Between Gastric Ulcer and Gastric Carcinoma." The president of the association, Dr. Lucien Stark, buried his father during the week, which was a matter of sincere regret to all.

A meeting of the **Twelfth Councilor District Medical Society** was held at the Lincoln Hotel. Scottsbluff, Nebraska, October 30, 1922. The following program was rendered:

President's Address, Minor Morris, Alliance; X Ray Demonstration of Digestive Diseases, L. G. Crosby, Denver; A. Look Ahead in Medicine, John McCoy, Alliance; Some Observations in Regard to Influenza, A. J. Stewart, Mitchell; Public Health Problems, A. J. Bartholomow, U. S. P. H. S., Lincoln.

The meeting was well attended and the papers well received by an appreciative audience.

A banquet was given at the Lincoln Hotel for the physicians and wives.

The following officers were elected for the ensuing year: F. W. Plehn, Scotts Bluff, president; A. C. Schoch, Alliance, vice president; George J. Hand, Alliance, re-elected secretary-treasurer.

The **Sixth Councilor District Medical Society** met at David City, Nov. 2. Owing to muddy roads but 28 were present. A midday luncheon was served at the Community Building.

Dr. H. W. Orr, Lincoln, gave a splendid demonstration of the proper way to fix a badly fractured elbow; Dr. E. S. Wegner, York, read a paper on "Constipation in Children"; Dr. P. H. Bartholomew, of the Bureau of Health, Lincoln, talked on Public Health; Dr. J. E. Leibee, Polk, read a paper, "Focal Infections with Special Reference to the Tonsils"; Dr. C. E. Beede, David City, discussed "Common Forms of Clinical Pyelitis."

Dr. Frank Tornholm, Wahoo, was elected president, Dr. C. E. Palmer, David City, secretary.

The **Custer County Medical Society** held it regular meeting in Broken Bow, Tuesday, Oct. 10, There was a good attendance and the society had for its guest, Dr. G. Alexander Young, of Omaha. The program for the afternoon comprised an informal talk by Dr. P. H. Bartholomew, of Lincoln, and papers on "Peptic Ulcer Problem" and "Heart Murmurs," read, respectively, by Dr. P. H. J. Carothers, of Mason City, and Dr. T. H. Koefoot, of Broken Bow. The annual election of officers, which took place at the meeting, resulted as follows: Dr. J. D. Wilson, of Broken Bow, president; Dr. G. I. Sellon, of Broken Bow, secretary-treasurer.

On Tuesday evening, Oct. 17, at the home of Dr. and Mrs. Earl Boyd, the **Merrick County Medical Society** held a lively meeting, at which time the local members and their wives dined the out of town fraternity.

The **Richardson County Medical Society** met at Falls City, November 1, and proceeded at once to have a 6:30 banquet preceeding the scientific meeting. Papers read were: "Acute Gastritis," by Dr. M. L. Wilson; "Blood Examinations With Interpretations," by Dr. C. L. Hustead; "Fracture of Femur," by Dr. H. R. Miner and clinical reports by Dr. C. P. Fordyce.

At the semi-monthly meeting of the **Lancaster County Medical Society**, Nov. 4, Dr. Edwin R. Le Count, pathologist to Rush Medical College, gave an address on "Cancer as Observed by a Pathologist."'

At the thirty-fifth annual convention of the **Missouri Valley Medical Society** held at St. Joseph, Dr. Floyd H. Spencer, St. Joseph, was elected president, and Dr. Palmer Findley, Omaha, one of the vice presidents.

The **Thayer County Medical Society** met at Hebron, Sept. 21, with 12 members present. Dr. H. E. Potter, Fairbury, Councilor for the Seventh District, read a paper on "Problems That Confront the Medical Doctor." Refreshments were served at the close of the program at the Blue Valley hospital, by the management of the hospital.

The meeting of the **Third Councilor District Medical Society** at Table Rock was attended by forty-one physicians and the feeling prevailed that it was a very successful meeting. The discussions were ready and full of that which is usually called "pep".

The **Seventh Councilor District Medical Society** meeting was held at Fairbury, October 26. Dr. Porter F. Dodson of Wilbur was elected president and Dr. H. E. Potter, Fairbury, secretary. About sixty doctors attended the meeting and partook of a dinner furnished by the Jefferson county medical society. The program follows:

"Pediatric Problems in General Practice"—Dr. H. Newell, Alexandria; "Vincent's Angina"—Dr. W. F. Mitchel, Superior; "Modern Measures"—Dr. Czar C. Johnson, Lincoln; "A Consideration of Foreign Bodies in the Air and Food Passages and Demonstration of their Removal"—Dr. W. L. Curtis, Lincoln; "Radiant Energy Therapy"—Dr. R. W. Fouts, Omaha; "What the Profession can do in the Control of Cancer"—Dr. Palmer Findley, Omaha.

More than sixty physicians, many of them accompanied by their wives attended the semi-annual meeting of the **Republican Valley and Tenth Councilor District Medical Society** in Hastings on Thursday, October 26th.

The program opened at the Strand Theatre at ten o'clock in the morning, where the Wertheim Obstetrical and Laparotomy film was shown to an audience of 125.

Lunch was eaten at noon at the Clarke Hotel.

At one o'clock the visiting ladies were taken for a drive around the city by the wives of the Hastings doctors after which they attended a matinee.

The Scientific Program commenced at one-thirty in the Library at Ingleside. The program was carried out exactly as arranged, every contributor being present. Each paper was thoroughly discussed:

"The Relationship Existing Between Appendicitis, Peptic Ulcer, Gastric Cancer and Gall Bladder Disease", Dr. J. N. Hall, Denver; "Double Uterus and Report of Case", Dr. A. L. Kee, Cambridge; "A Few Random Shots", Dr. H. C. Smith, Franklin; "History of a Case", Dr. F. A. Creighton, Red Cloud; "Common Colds", Dr. G. W. Clark, Bertrand; "Some of the Contributions Physicians Have Made to Civilization", Dr. E. I. Whitehead, Holdrege; "Peptic Ulcer", Dr. J. M. Willis, McCook; "Infection of Maxillary Sinus", Dr. L. W. Rork, Oxford.

During the afternoon a short business session was held. Fourteen new members were admitted and the following officers were elected for 1923: President, Dr. A. L. Kee of Cambridge; Secretary, Dr. N. T. Johnston of Upland.

There were present at the session, in addition to the members, President-Elect, B. F. Bailey; Secretary, R. B. Adams and Councilors, Nielsen, Bryson and Overgaard of the State Association. The meeting was the largest and best in the history of the Society.

At six-thirty a Banquet was given at the Clarke Hotel at which nearly 100 were present. Councilor Johnston was toastmaster. The speakers included, Dr. J. N. Hall of Denver; Dr. Bailey of Lincoln; Dr. Morris Nielsen of Blair; Dr. Adams of Lincoln; Dr. Overgaard of Omaha; Dr. Dillon of Lincoln and Dr. Beghtol of Hastings.

The next meeting will be held in McCook on the last Thursday in May, 1923. The committee in charge of the next program consists of Drs. Fellers of Palisade, McKechnie of Indianola and Gardner of Orleans.

The sixteenth annual meeting of the **Fifth Councilor District Medical Society** was held at Columbus, November 1, under the councilorship of Dr. Morris Nielsen, Blair. Owing to bad weather conditions only about 25 were in attendance, but in spite of handicaps the meeting was a very good one. The program was of especial merit and the dinner superb. The musical program represented the finest array of talent ever brought out in a meeting of this kind. The following program was carried out:

Dr. B. C. Tiesing, Columbus, "Report of Several Cases of Encephalitis"; Dr. A. D. Dunn, Omaha, "Diagnostic Methods", followed by a "Round Table" and "General Discussion" on the evaluation of the fundamental methods, viz: History taking, Observation, Physical Diagnosis and Laboratory examination, presided over by Dr. E. T. Manning, Omaha; Dr. W. L. Shearer, Omaha, "Cleft palate and Cleft Lip". (Illustrated by Lantern Slides); Dr. W. R. Neumarker, Columbus, "The Importance of Breast Feeding"; Dr. A. P. Overgaard, Omaha, "X Ray Diagnosis of Gastric and Duodenal Ulcers". (Illustrated by Lantern Slides).

NOTES ABOUT THE DOCTOR.

Dr. A. N. Anderson, formerly of Lincoln, has located at Carleton.

Dr. Wren Morrow, formerly of Seward, has located at Tekamah, near which place he was born and reared.

Dr. J. R. McKirahan has left North Platte to take charge of the American hospital at Picher, Oklahoma.

Dr. A. L. Miller, Bushnell, has retired from the field and is to be succeeded by Dr. H. O. Drew, lately of Silver Creek.

Dr. M. C. James and Dr. J. E. Meyer, Columbus, formerly of the Evans Clinic, have formed a partnership for the practice of medicine and surgery.

Dr. George A. Angus, Omaha, has been sentenced to a year in the federal prison at Leavenworth, after convicton on a dope-selling charge.

Dr. and Mrs. Leroy Crummer have returned from Europe. While abroad they visited most of the famous libraries in western Europe and the British Isles.

Dr. A. J. Carlson, Prof. Physiology, University of Chicago, gave an address before the Lancaster county medical society. Nov. 18, on "Recent Advances in the Physiology of the Alimentary Canal".

The Omaha Woman's Medical society was organized November 7, by the following women physicians: Drs. Kathleen Sullivan, Emelia Brandt, Rose Wohl, Mattie Arthur, Norah Fairchild.

Dr. G. H. Morris, Newman Grove, was called to Ontario, Calif., on account of the illness of his father. The elder Morris was treated to a blood transfusion in a San Antonio Hospital, Dr. G. H. Morris being the donor.

Dr. F. A. McGrew, formerly of Comstock, after a summer spent at the Denison Research laboratory of the University of Colorado, has located at Hastings and will devote himself to diagnosis and internal medicine.

Among the Pilgrims to the American Legion convention at New Orleans were Dr. and Mrs. Lucien Stark of Hartington. The doctor reports that it was a great show and that they returned tired, but happy and had a wonderful time.

Dr. Caroline Hedger of the Elizabeth McCormick Institute, Chicago, spent a month in Nebraska making a survey for the extension division of the University of Nebraska. Her special study is malnutrition. She spoke at various places in the state, notably at the meeting of the General Federation of Women's Clubs, at North Platte, and at the Seventeenth Annual Convention of the Nebraska State Nurses' Association, Omaha.

NECROLOGICAL

Dr. L. B. Smith, College of Physicians and Surgeons, Keokuk, 1878, a resident of Fremont since 1867 and a beloved practitioner in the same place for upward of forty years, died November 19, following several years of failing health and a critical illness of one week, aged about 77 years. He was the first president of the Dodge County Medical society and for many years was a member of the State Medical.

Dr. Smith was one of the kindest and most considerate of men. The editor, forty years ago, then a fledgling in the profession, just arrived in the state, called on the deceased and was the recipient of kindnesses never forgotten.

Dr. William H. Byerly, Medical College of Virginia, 1869, in practice at Franklin since 1878, died October 19, after a year's illness from paralysis, aged 76 years. Dr. Byerly had been interested in the civic activities of his community and for many years had been a member of the board of education and some time was mayor. He was a member of the Franklin County Medical society since its inception, and last year was voted an honorary membership by the society. The members of the society sent a floral tribute and a message of sympathy and most of them attended the funeral.

Dr. Charles A. Hales, Ravenna, University of Nebraska, 1886, for thirty-six years a beloved practitioner in his community in Buffalo and Sherman counties died October 18.

Dr. James Kay, a student at Starling Medical College, 1863-64, a practitioner at Nemaha from 1869 until about 9 years ago when he became disabled by an accident, died October 11, aged 86. He was a veteran of the civil war.

THE NEBRASKA STATE MEDICAL JOURNAL

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ANNUAL MEETING, OMAHA, APRIL 24-27

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REPUBLICAN VALLEY NUMBER

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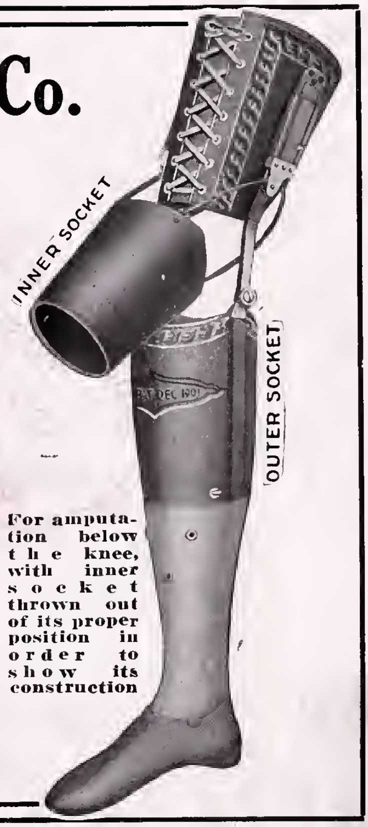

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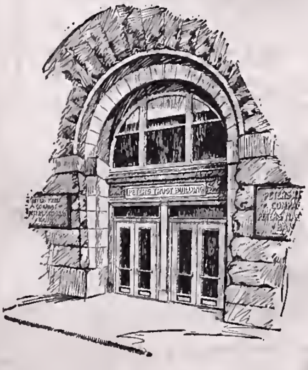

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CANCER WEEK, NOV. 12-18

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ESTABLISHED 1916 BY THE NEBRASKA STATE MEDICAL ASSOCIATION

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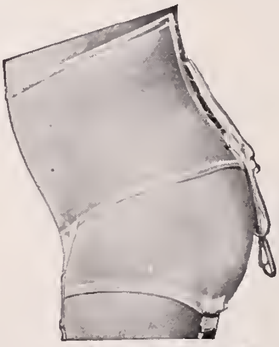

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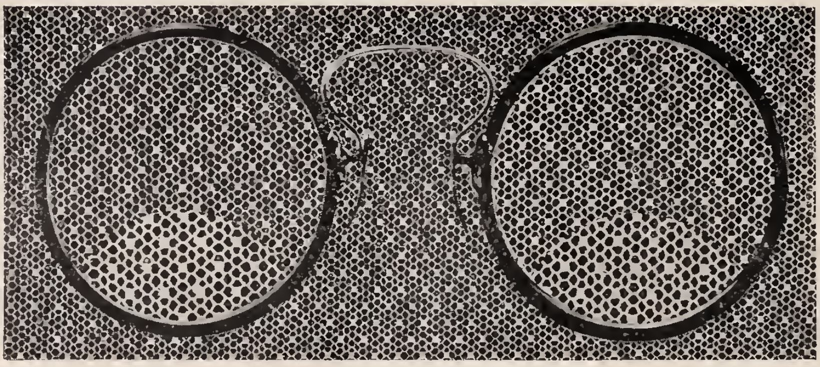

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